Access DB# 300/6

SEARCH REQUEST FORM
Scientific and Technical Information Center

(180)

705/26

Requester's Full Name: __Forest Thompson__ Examiner # : _76652_____ Date: _11/28/00__
Art Unit: _2165___ Phone Number 306-5449____ Serial Number: 09/253055
Mail Box Location: __5W05_____ Results Format Preferred (circle): [PAPER] DISK E-MAIL

If mor than one search is submitted, please prioritize searches in order of need.
****

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: _Method and Apparatus for Facilitating Electronic Commerce Through Two-Tiered

Electronic Markets and Auctions_____

Inventors (please provide full names): _Thomas G. Woolston_____

Earliest Priority Filing Date: ___11/07/1995___

For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

A method and apparatus for conducting two-tiered auctions comprising:
- a retail tier in which a bid on an item from a retail auction participant is evaluated based on an amount the bid received;
- a wholesale tier in which a bid on the item from a wholesale auction participant is evaluated based on the amount of the bid received increased by a predetermined amount;
- a process for differentiating retail auction participants from wholesale auction participants; and
- treating received bids differently on whether the participant from whom a bid is received is a retail participant or a wholesale participant,
- if a wholesale participant wins an auction, an amount owed by the wholesale participant is less than an amount of the wholesale participant's winning bid;
- presenting for auction an item description stored in a database including a current retail bid amount;
- receiving a wholesale bid from at least one wholesale-tier participant; and
- selectively displacing the current retail bid amount if the received wholesale bid increased by a predetermined amount is greater than the current retail bid.

KEYWORDS:
Auction
Two tier system
Wholsale participant
Retail participant
Customer
Buyer
Seller
Network
Electronic auction system
Electronic commerce
****

Rcd 11/28/00 11:52 A.m.

STAFF USE ONLY	Type of Search	Vendors and cost where applicable	
Searcher: Alexander Belinky	NA Sequence (#)_____	STN _____	
Searcher Phone #: BB LPk2 4089	AA Sequence (#)_____	Dialog ✓	
Searcher Location: 30X S172	Structure (#) _____	Questel/Orbit _____	
Searcher Picked Up: 11/29	Bibliographic _____	Dr.Link _____	
Date Completed: 12/1	Litigation _____	Lexis/Nexis _____	
Searcher Prep & Review Time: 2/0	Fulltext _____	Sequence Systems _____	
Clerical Prep Time: _____	Patent Family _____	WWW/Internet ✓	
Online Time: 660	Other _____	Other (specify)_____	

Report for Examiner Forest Thompson Jr 09/253057   December 1, 200_   11:32

File 350:Derwent WPIX 1963-2000/UD,UM &UP=200061
    (c) 2000 Derwent Info Ltd
File 347:JAPIO Oct 1976-2000/Jul(UPDATED 001114)
    (c) 2000 JPO & JAPIO

Set	Items	Description
S1	1002	AUCTION? OR BID OR BIDS OR BIDDING OR TRADING(2N)(SYSTEM?? OR SERVIC?)
S2	0	(WHOLESALER? OR TRADER? OR DISTRIBUTOR? OR VENDOR? OR MERCHAN?) AND RETAILER?
S3	1	(RETAIL? AND WHOLESALE?)
S4	253	USER? OR PARTICIP? OR MEMBER? OR CUSTOMER? OR CLIENT? OR SUBSCRIB? OR PATRON?
S5	186	CONSUMER? OR BUYER? OR PURCHASER? OR SHOPPER? OR BIDDER?
S6	57	SELLER? OR RESELLER? OR SUPPLIER? OR VENDOR? OR MERCHANT?
S7	97	DEALER? OR BROKER? OR AGENT? OR MIDDLEM?N OR INTERMEDIAR?
S8	63	TRADER? OR DISTRIBUTOR? OR VENDOR? OR MERCHAN?
S9	0	S3(3W) (S4 OR S5 OR S6 OR S7 OR S8)
S10	19	(TWO OR THREE OR FIRST OR SECOND OR DIFFERENT OR SEVERAL) - (2W)(TYPE? OR KIND? OR GROUP? OR TIER? OR CATEGOR? OR CLASS?)
S11	175	NEW OR OLDER OR FORMER OR EXISTING OR PREVIOUS? OR REGULAR? OR EARLIER OR ESTABLISH? OR PREFERRED? OR PRIMARY OR VALUED
S12	17	(S10 OR S11) (3W) (S4 OR S5 OR S6 OR S7 OR S8)
S13	0	(NONMEMBER? OR NON()MEMBER?)
S14	1	NONPARTICIPANT? OR NON()PARTICIPANT?
S15	16	SUBSCRIBER? OR NONSUBSCRIBER?
S16	17	S13 OR S14 OR S15
S17	33	S2 OR S9 OR S12 OR S16
S18	2	(DISCRIMINAT? OR DIFFEREN?) (2N)PRICE?
S19	414	PREFERENC? OR ADVANTAG? (NOT N)USE
S20	6	DISCOUNT? OR PREMIUM
S21	415	S18 OR S19 OR S20
S22	21	(S17 AND S21)
S23	21	S22 AND S1
S24	146	IC=G06F-017/60
S25	9	S23 AND S24
S26	457	S4 OR S5 OR S6 OR S7 OR S8 OR RETAILER? OR WHOLESALER?
S27	12	S26 AND (S18 OR S20 OR PREFERENC?)
S28	7	S27 AND S24 NOT S25
S29	3	S20 AND S1 NOT (S25 OR S28)

all considered

have full text
patents

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December 1, 2000   11:53

File 474:New York Times Abs 1969-2000/Nov 30
    (c) 2000 The New York Times
File 475:Wall Street Journal Abs 1973-2000/Nov 30
    (c) 2000 The New York Times
File 473:Financial Times Abstracts 1998-2000/Nov 30
    (c) 2000 The New York Times

Set	Items	Description
S1	50220	AUCTION? OR BID OR BIDS OR BIDDING OR TRADING(2N)(SYSTEM?? OR SERVIC?)
S2	1186	(WHOLESALER? OR TRADER? OR DISTRIBUTOR? OR VENDOR? OR MERCHAN?) AND RETAILER?
S3	1150	(RETAIL? AND WHOLESALE?)
S4	166781	USER? OR PARTICIP? OR MEMBER? OR CUSTOMER? OR CLIENT? OR SUBSCRIB? OR PATRON?
S5	63882	CONSUMER? OR BUYER? OR PURCHASER? OR SHOPPER? OR BIDDER?
S6	16513	SELLER? OR RESELLER? OR SUPPLIER? OR VENDOR? OR MERCHANT?
S7	54400	DEALER? OR BROKER? OR AGENT? OR MIDDLEM?N OR INTERMEDIAR?
S8	30252	TRADER? OR DISTRIBUTOR? OR VENDOR? OR MERCHAN?
S9	126	S3(3W) (S4 OR S5 OR S6 OR S7 OR S8)
S10	6365	(TWO OR THREE OR FIRST OR SECOND OR DIFFERENT OR SEVERAL) -(2W)(TYPE? OR KIND? OR GROUP? OR TIER? OR CATEGOR? OR CLASS?)
S11	1017861	NEW OR OLDER OR FORMER OR EXISTING OR PREVIOUS? OR REGULAR? OR EARLIER OR ESTABLISH? OR PREFERRED? OR PRIMARY OR VALUED
S12	11884	(S10 OR S11) (3W) (S4 OR S5 OR S6 OR S7 OR S8)
S13	357	(NONMEMBER? OR NON()MEMBER?)
S14	14	NONPARTICIPANT? OR NON()PARTICIPANT?
S15	2308	SUBSCRIBER? OR NONSUBSCRIBER?
S16	2679	S13 OR S14 OR S15
S17	15664	S2 OR S9 OR S12 OR S16
S18	397	(DISCRIMINAT? OR DIFFEREN?) (2N)PRICE?
S19	11852	PREFERENC? OR ADVANTAG? (NOT N)USE
S20	13124	DISCOUNT? OR PREMIUM
S21	25180	S18 OR S19 OR S20
S22	490	(S17 AND S21)
S23	7	S22 AND S1
S24	301344	S4 OR S5 OR S6 OR S7 OR S8 OR RETAILER? AND WHOLESALER?
S25	6	S24 AND S18 AND S1 NOT S23
S26	74	S24 AND S20 AND S1 NOT (PY>1997 OR S23 OR S25)
S27	35	S26 AND AUCTION?
S28	21	S27 AND PRIC?

all considered

non full text
newspapers

DIALOG

File 350:Derwent WPIX 1963-2000/UD,UM &UP=200061
     (c) 2000 Derwent Info Ltd
File 347:JAPIO Oct 1976-2000/Jul(UPDATED 001114)
     (c) 2000 JPO & JAPIO

Set	Items	Description
S1	1002	AUCTION? OR BID OR BIDS OR BIDDING OR TRADING(2N)(SYSTEM?? OR SERVIC?)
S2	0	(WHOLESALER? OR TRADER? OR DISTRIBUTOR? OR VENDOR? OR MERC-HAN?) AND RETAILER?
S3	1	(RETAIL? AND WHOLESALE?)
S4	253	USER? OR PARTICIP? OR MEMBER? OR CUSTOMER? OR CLIENT? OR S-UBSCRIB? OR PATRON?
S5	186	CONSUMER? OR BUYER? OR PURCHASER? OR SHOPPER? OR BIDDER?
S6	57	SELLER? OR RESELLER? OR SUPPLIER? OR VENDOR? OR MERCHANT?
S7	97	DEALER? OR BROKER? OR AGENT? OR MIDDLEM?N OR INTERMEDIAR?
S8	63	TRADER? OR DISTRIBUTOR? OR VENDOR? OR MERCHAN?
S9	0	S3(3W) (S4 OR S5 OR S6 OR S7 OR S8)
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S11	175	NEW OR OLDER OR FORMER OR EXISTING OR PREVIOUS? OR REGULAR? OR EARLIER OR ESTABLISH? OR PREFERRED? OR PRIMARY OR VALUED
S12	17	(S10 OR S11) (3W) (S4 OR S5 OR S6 OR S7 OR S8)
S13	0	(NONMEMBER? OR NON()MEMBER?)
S14	1	NONPARTICIPANT? OR NON()PARTICIPANT?
S15	16	SUBSCRIBER? OR NONSUBSCRIBER?
S16	17	S13 OR S14 OR S15
S17	33	S2 OR S9 OR S12 OR S16
S18	2	(DISCRIMINAT? OR DIFFEREN?) (2N)PRICE?
S19	414	PREFERENC? OR ADVANTAG? (NOT N)USE
S20	6	DISCOUNT? OR PREMIUM
S21	415	S18 OR S19 OR S20
S22	21	(S17 AND S21)
S23	21	S22 AND S1
S24	146	IC=G06F-017/60
S25	9	S23 AND S24
S26	457	S4 OR S5 OR S6 OR S7 OR S8 OR RETAILER? OR WHOLESALER?
S27	12	S26 AND (S18 OR S20 OR PREFERENC?)
S28	7	S27 AND S24 NOT S25
S29	3	S20 AND S1 NOT (S25 OR S28)

all considered

have full text patents

File 348:European Patents 1978-2000/Dec W01
    (c) 2000 European Patent Office
File 349:PCT Fulltext 1983-2000/UB=20001123, UT=20001102
    (c) 2000 WIPO/MicroPat

Set	Items	Description
S1	2845	AUCTION? OR BID OR BIDS OR BIDDING OR TRADING(2N)(SYSTEM?? OR SERVIC?)
S2	22	(WHOLESALER? OR TRADER? OR DISTRIBUTOR? OR VENDOR? OR MERCHAN?) (5N) RETAILER?
S3	34	(RETAIL? (5N) WHOLESALE?)
S4	1881	USER? OR PARTICIP? OR MEMBER? OR CUSTOMER? OR CLIENT? OR SUBSCRIB? OR PATRON?
S5	540	CONSUMER? OR BUYER? OR PURCHASER? OR SHOPPER? OR BIDDER?
S6	602	SELLER? OR RESELLER? OR SUPPLIER? OR VENDOR? OR MERCHANT?
S7	1536	DEALER? OR BROKER? OR AGENT? OR MIDDLEM?N OR INTERMEDIAR?
S8	493	TRADER? OR DISTRIBUTOR? OR VENDOR? OR MERCHAN?
S9	7	S3(3W) (S4 OR S5 OR S6 OR S7 OR S8)
S10	1401	(TWO OR THREE OR FIRST OR SECOND OR DIFFERENT OR SEVERAL) -(2W)(TYPE? OR KIND? OR GROUP? OR TIER? OR CATEGOR? OR CLASS?)
S11	433	NEW (10W)(OLDER OR FORMER OR EXISTING OR PREVIOUS? OR REGULAR? OR EARLIER OR ESTABLISH? OR PREFERRED? OR PRIMARY)
S12	123	(S10 OR S11) (3W) (S4 OR S5 OR S6 OR S7 OR S8)
S13	4	MEMBER? (10W) (NONMEMBER? OR NON()MEMBER?)
S14	2	PARTICIPANT? (10W) (NONPARTICIPANT? OR NON()PARTICIPANT?)
S15	1	SUBSCRIBER? (10W) (NONSUBSCRIBER? OR NON()SUBSCRIBER?)
S16	6	S13 OR S14 OR S15
S17	146	S2 OR S9 OR S12 OR S16
S18	114	(DISCRIMINAT? OR DIFFEREN?) (2N)PRICE?
S19	2038	PREFERENC? OR ADVANTAG?
S20	189	DISCOUNT?
S21	2059	S18 OR S19 OR S20
S22	5	(S17(10N)S21)
S23	1	S22(20N)S1
S24	2376	S4 OR S5 OR S6 OR S7 OR S8 OR RETAILER? OR WHOLESALER?
S25	78	S24(20N)S18
S26	28	S25(10N)S1
S27	16	S24(10N)S20(10N)S1 NOT S26

all considered

full text

patents

DIALOG ● December 1, 2000 09:3̄5

File 146:Washington Post Online 1983-2000/Dec 01
    (c) 2000 Washington Post
File 387:The Denver Post 1994-2000/Nov 30
    (c) 2000 Denver Post
File 471:New York Times Fulltext-90 Day 2000/Dec 01
    (c) 2000 The New York Times
File 492:Arizona Repub/Phoenix Gaz 19862000/Nov 09
    (c) 2000 Phoenix Newspapers
File 494:St LouisPost-Dispatch 1988-2000/Nov 30
    (c) 2000 St Louis Post-Dispatch
File 498:Detroit Free Press 1987-2000/Nov 30
    (c) 2000 Detroit Free Press Inc.
File 630:Los Angeles Times 1993-2000/Nov 30
    (c) 2000 Los Angeles Times
File 631:Boston Globe 1980-2000/Nov 30
    (c) 2000 Boston Globe
File 632:Chicago Tribune 1985-2000/Dec 01
    (c) 2000 Chicago Tribune
File 633:Phil.Inquirer 1983-2000/Nov 30
    (c) 2000 Philadelphia Newspapers Inc
File 638:Newsday/New York Newsday 1987-2000/Nov 29
    (c) 2000 Newsday Inc.
File 640:San Francisco Chronicle 1988-2000/Nov 30
    (c) 2000 Chronicle Publ. Co.
File 641:Denver Rky Mtn News Jun 1989-2000/Nov 30
    (c) 2000 Scripps Howard News
File 702:Miami Herald 1983-2000/Nov 30
    (c) 2000 The Miami Herald Publishing Co.
File 703:USA Today 1989-2000/Nov 29
    (c) 2000 USA Today
File 704:(Portland)The Oregonian 1989-2000/Nov 30
    (c) 2000 The Oregonian
File 713:Atlanta J/Const. 1989-2000/Dec 01
    (c) 2000 Atlanta Newspapers
File 714:(Baltimore) The Sun 1990-2000/Nov 29
    (c) 2000 Baltimore Sun
File 715:Christian Sci.Mon. 1989-2000/Dec 01
    (c) 2000 Christian Science Monitor
File 725:(Cleveland)Plain Dealer Aug 1991-2000/Nov 19
    (c) 2000 The Plain Dealer
File 735:St. Petersburg Times 1989- 2000/Nov 01
    (c) 2000 St. Petersburg Times
File 477:Irish Times 1999-2000/Nov 30
    (c) 2000 Irish Times
File 710:Times/Sun.Times(London) Jun 1988-2000/Nov 30
    (c) 2000 Times Newspapers
File 711:Independent(London) Sep 1988-2000/Nov 30
    (c) 2000 Newspaper Publ. PLC

full text papers

Set	Items	Description
S1	298481	AUCTION? OR BIDDING OR TRADING(2N)(SYSTEM? ? OR SERVIC?)
S2	394	(WHOLESALER? OR TRADER? OR DISTRIBUTOR? OR VENDOR? OR MERC-HAN?) (5N) RETAILER?
S3	567	(RETAIL? (5N) WHOLESALE?)
S4	116958	USER? OR PARTICIP? OR MEMBER? OR CUSTOMER? OR CLIENT? OR S-UBSCRIB?
S5	74082	CONSUMER? OR BUYER? OR PURCHASER? OR SHOPPER? OR BIDDER?

S6   28651   SELLER? OR RESELLER? OR SUPPLIER? OR VENDOR? OR MERCHANT?
S7   62994   DEALER? OR BROKER? OR AGENT? OR MIDDLEM?N OR INTERMEDIAR?
S8   30174   TRADER? OR DISTRIBUTOR? OR VENDOR? OR MERCHAN?
S9   37   S3(3W) (S4 OR S5 OR S6 OR S7 OR S8)
S10   12845   (TWO OR THREE OR FIRST OR SECOND OR DIFFERENT OR SEVERAL) -
               (2W)(TYPE? OR KIND? OR GROUP? OR TIER? OR CATEGOR? OR CLASS?)
S11   8044   NEW (10W)(OLDER OR FORMER OR EXISTING OR PREVIOUS? OR REGU-
               LAR? OR EARLIER OR ESTABLISH? OR PREFERRED? OR PRIMARY)
S12   528   (S10 OR S11) (3W) (S4 OR S5 OR S6 OR S7 OR S8)
S13   1465   MEMBER? (10W) (NONMEMBER? OR NON()MEMBER?)
S14   0   PARTICIPANT? (10W) (NONPARTICIPANT? OR NON()PARTICIPANT?)
S15   5   SUBSCRIBER? (10W) (NONSUBSCRIBER? OR NON()SUBSCRIBER?)
S16   1469   S13 OR S14 OR S15
S17   2412   S2 OR S9 OR S12 OR S16
S18   1230   (DISCRIMINAT? OR DIFFEREN?) (2N)PRICE?
S19   16697   PREFERENC? OR ADVANTAG?
S20   15505   DISCOUNT
S21   32252   S18 OR S19 OR S20
S22   28   (S17(10N)S21)
(S23)   3   S22(20N)S1
S24   192955   S4 OR S5 OR S6 OR S7 OR S8 OR RETAILER? OR WHOLESALER?
S25   3903   S24(10N)S21
S26   616   S25(20N)S1
S27   26   S26(5N)S18
(S28)   18   S27 NOT (PY>1998 OR S23)
S29   16   S26(5N)(S20(5N)PRIC?)
(S30)   9   S29 NOT (PY>1997 OR S23 OR S28)
S31   147   S13(20N)S1
S32   92   S31 NOT PY>1997
(S33)   2   S32(10N) PRIC?
?

all considired

Report for Examiner Forest Thompson Jr 09/253057   December 1, 2000   11:32

File 350:Derwent WPIX 1963-2000/UD,UM &UP=200061
       (c) 2000 Derwent Info Ltd
File 347:JAPIO Oct 1976-2000/Jul(UPDATED 001114)
       (c) 2000 JPO & JAPIO

Set	Items	Description
S1	1002	AUCTION? OR BID OR BIDS OR BIDDING OR TRADING(2N)(SYSTEM?? OR SERVIC?)
S2	0	(WHOLESALER? OR TRADER? OR DISTRIBUTOR? OR VENDOR? OR MERCHAN?) AND RETAILER?
S3	1	(RETAIL? AND WHOLESALE?)
S4	253	USER? OR PARTICIP? OR MEMBER? OR CUSTOMER? OR CLIENT? OR SUBSCRIB? OR PATRON?
S5	186	CONSUMER? OR BUYER? OR PURCHASER? OR SHOPPER? OR BIDDER?
S6	57	SELLER? OR RESELLER? OR SUPPLIER? OR VENDOR? OR MERCHANT?
S7	97	DEALER? OR BROKER? OR AGENT? OR MIDDLEM?N OR INTERMEDIAR?
S8	63	TRADER? OR DISTRIBUTOR? OR VENDOR? OR MERCHAN?
S9	0	S3(3W) (S4 OR S5 OR S6 OR S7 OR S8)
S10	19	(TWO OR THREE OR FIRST OR SECOND OR DIFFERENT OR SEVERAL) - (2W)(TYPE? OR KIND? OR GROUP? OR TIER? OR CATEGOR? OR CLASS?)
S11	175	NEW OR OLDER OR FORMER OR EXISTING OR PREVIOUS? OR REGULAR? OR EARLIER OR ESTABLISH? OR PREFERRED? OR PRIMARY OR VALUED
S12	17	(S10 OR S11) (3W) (S4 OR S5 OR S6 OR S7 OR S8)
S13	0	(NONMEMBER? OR NON()MEMBER?)
S14	1	NONPARTICIPANT? OR NON()PARTICIPANT?
S15	16	SUBSCRIBER? OR NONSUBSCRIBER?
S16	17	S13 OR S14 OR S15
S17	33	S2 OR S9 OR S12 OR S16
S18	2	(DISCRIMINAT? OR DIFFEREN?) (2N)PRICE?
S19	414	PREFERENC? OR ADVANTAG? (NOT N)USE
S20	6	DISCOUNT? OR PREMIUM
S21	415	S18 OR S19 OR S20
S22	21	(S17 AND S21)
S23	21	S22 AND S1
S24	146	IC=G06F-017/60
S25	9	S23 AND S24
S26	457	S4 OR S5 OR S6 OR S7 OR S8 OR RETAILER? OR WHOLESALER?
S27	12	S26 AND (S18 OR S20 OR PREFERENC?)
S28	7	S27 AND S24 NOT S25
S29	3	S20 AND S1 NOT (S25 OR S28)

all considered

non full text patents

DIALOG

File 474:New York Times Abs 1969-2000/Nov 30
    (c) 2000 The New York Times
File 475:Wall Street Journal Abs 1973-2000/Nov 30
    (c) 2000 The New York Times
File 473:Financial Times Abstracts 1998-2000/Nov 30
    (c) 2000 The New York Times

Set	Items	Description
S1	50220	AUCTION? OR BID OR BIDS OR BIDDING OR TRADING(2N)(SYSTEM? ? OR SERVIC?)
S2	1186	(WHOLESALER? OR TRADER? OR DISTRIBUTOR? OR VENDOR? OR MERCHAN?) AND RETAILER?
S3	1150	(RETAIL? AND WHOLESALE?)
S4	166781	USER? OR PARTICIP? OR MEMBER? OR CUSTOMER? OR CLIENT? OR SUBSCRIB? OR PATRON?
S5	63882	CONSUMER? OR BUYER? OR PURCHASER? OR SHOPPER? OR BIDDER?
S6	16513	SELLER? OR RESELLER? OR SUPPLIER? OR VENDOR? OR MERCHANT?
S7	54400	DEALER? OR BROKER? OR AGENT? OR MIDDLEM?N OR INTERMEDIAR?
S8	30252	TRADER? OR DISTRIBUTOR? OR VENDOR OR MERCHAN?
S9	126	S3(3W) (S4 OR S5 OR S6 OR S7 OR S8)
S10	6365	(TWO OR THREE OR FIRST OR SECOND OR DIFFERENT OR SEVERAL) - (2W)(TYPE? OR KIND? OR GROUP? OR TIER? OR CATEGOR? OR CLASS?)
S11	1017861	NEW OR OLDER OR FORMER OR EXISTING OR PREVIOUS? OR REGULAR? OR EARLIER OR ESTABLISH? OR PREFERRED? OR PRIMARY OR VALUED
S12	11884	(S10 OR S11) (3W) (S4 OR S5 OR S6 OR S7 OR S8)
S13	357	(NONMEMBER? OR NON()MEMBER?)
S14	14	NONPARTICIPANT? OR NON()PARTICIPANT?
S15	2308	SUBSCRIBER? OR NONSUBSCRIBER?
S16	2679	S13 OR S14 OR S15
S17	15664	S2 OR S9 OR S12 OR S16
S18	397	(DISCRIMINAT? OR DIFFEREN?) (2N)PRICE?
S19	11852	PREFERENC? OR ADVANTAG? (NOT N)USE
S20	13124	DISCOUNT? OR PREMIUM
S21	25180	S18 OR S19 OR S20
S22	490	(S17 AND S21)
S23	7	S22 AND S1
S24	301344	S4 OR S5 OR S6 OR S7 OR S8 OR RETAILER? AND WHOLESALER?
S25	6	S24 AND S18 AND S1 NOT S23
S26	74	S24 AND S20 AND S1 NOT (PY>1997 OR S23 OR S25)
S27	35	S26 AND AUCTION?
S28	21	S27 AND PRIC?

all considered

non full text
newspapers

File 350:Derwent WPIX 1963-2000/UD,UM &UP=200061
      (c) 2000 Derwent Info Ltd
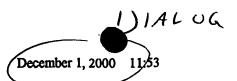File 347:JAPIO Oct 1976-2000/Jul(UPDATED 001114)
      (c) 2000 JPO & JAPIO

Set	Items	Description
S1	1002	AUCTION? OR BID OR BIDS OR BIDDING OR TRADING(2N)(SYSTEM? ? OR SERVIC?)
S2	0	(WHOLESALER? OR TRADER? OR DISTRIBUTOR? OR VENDOR? OR MERCHAN?) AND RETAILER?
S3	1	(RETAIL? AND WHOLESALE?)
S4	253	USER? OR PARTICIP? OR MEMBER? OR CUSTOMER? OR CLIENT? OR SUBSCRIB? OR PATRON?
S5	186	CONSUMER? OR BUYER? OR PURCHASER? OR SHOPPER? OR BIDDER?
S6	57	SELLER? OR RESELLER? OR SUPPLIER? OR VENDOR? OR MERCHANT?
S7	97	DEALER? OR BROKER? OR AGENT? OR MIDDLEM?N OR INTERMEDIAR?
S8	63	TRADER? OR DISTRIBUTOR? OR VENDOR? OR MERCHAN?
S9	0	S3(3W) (S4 OR S5 OR S6 OR S7 OR S8)
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S12	17	(S10 OR S11) (3W) (S4 OR S5 OR S6 OR S7 OR S8)
S13	0	(NONMEMBER? OR NON()MEMBER?)
S14	1	NONPARTICIPANT? OR NON()PARTICIPANT?
S15	16	SUBSCRIBER? OR NONSUBSCRIBER?
S16	17	S13 OR S14 OR S15
S17	33	S2 OR S9 OR S12 OR S16
S18	2	(DISCRIMINAT? OR DIFFEREN?) (2N)PRICE?
S19	414	PREFERENC? OR ADVANTAG? (NOT N)USE
S20	6	DISCOUNT? OR PREMIUM
S21	415	S18 OR S19 OR S20
S22	21	(S17 AND S21)
S23	21	S22 AND S1
S24	146	IC=G06F-017/60
S25	9	S23 AND S24
S26	457	S4 OR S5 OR S6 OR S7 OR S8 OR RETAILER? OR WHOLESALER?
S27	12	S26 AND (S18 OR S20 OR PREFERENC?)
S28	7	S27 AND S24 NOT S25
S29	3	S20 AND S1 NOT (S25 OR S28)

all Considered

have full text patents

DIALOG

Report for Examiner Forest Thompson Jr 09/253057   December 1, 2000   11:53

File 474:New York Times Abs 1969-2000/Nov 30
    (c) 2000 The New York Times
File 475:Wall Street Journal Abs 1973-2000/Nov 30
    (c) 2000 The New York Times
File 473:Financial Times Abstracts 1998-2000/Nov 30
    (c) 2000 The New York Times

Set	Items	Description
S1	50220	AUCTION? OR BID OR BIDS OR BIDDING OR TRADING(2N)(SYSTEM? ? OR SERVIC?)
S2	1186	(WHOLESALER? OR TRADER? OR DISTRIBUTOR? OR VENDOR? OR MERCHAN?) AND RETAILER?
S3	1150	(RETAIL? AND WHOLESALE?)
S4	166781	USER? OR PARTICIP? OR MEMBER? OR CUSTOMER? OR CLIENT? OR SUBSCRIB? OR PATRON?
S5	63882	CONSUMER? OR BUYER? OR PURCHASER? OR SHOPPER? OR BIDDER?
S6	16513	SELLER? OR RESELLER? OR SUPPLIER? OR VENDOR? OR MERCHANT?
S7	54400	DEALER? OR BROKER? OR AGENT? OR MIDDLEM?N OR INTERMEDIAR?
S8	30252	TRADER? OR DISTRIBUTOR? OR VENDOR? OR MERCHAN?
S9	126	S3(3W) (S4 OR S5 OR S6 OR S7 OR S8)
S10	6365	(TWO OR THREE OR FIRST OR SECOND OR DIFFERENT OR SEVERAL) - (2W)(TYPE? OR KIND? OR GROUP? OR TIER? OR CATEGOR? OR CLASS?)
S11	1017861	NEW OR OLDER OR FORMER OR EXISTING OR PREVIOUS? OR REGULAR? OR EARLIER OR ESTABLISH? OR PREFERRED? OR PRIMARY OR VALUED
S12	11884	(S10 OR S11) (3W) (S4 OR S5 OR S6 OR S7 OR S8)
S13	357	(NONMEMBER? OR NON()MEMBER?)
S14	14	NONPARTICIPANT? OR NON()PARTICIPANT?
S15	2308	SUBSCRIBER? OR NONSUBSCRIBER?
S16	2679	S13 OR S14 OR S15
S17	15664	S2 OR S9 OR S12 OR S16
S18	397	(DISCRIMINAT? OR DIFFEREN?) (2N)PRICE?
S19	11852	PREFERENC? OR ADVANTAG? (NOT N)USE
S20	13124	DISCOUNT? OR PREMIUM
S21	25180	S18 OR S19 OR S20
S22	490	(S17 AND S21)
S23	7	S22 AND S1
S24	301344	S4 OR S5 OR S6 OR S7 OR S8 OR RETAILER? AND WHOLESALER?
S25	6	S24 AND S18 AND S1 NOT S23
S26	74	S24 AND S20 AND S1 NOT (PY>1997 OR S23 OR S25)
S27	35	S26 AND AUCTION?
S28	21	S27 AND PRIC?

all considered

non full text newspapers

File 350:Derwent WPIX 1963-2000/UD,UM &UP=200061
    (c) 2000 Derwent Info Ltd
File 347:JAPIO Oct 1976-2000/Jul(UPDATED 001114)
    (c) 2000 JPO & JAPIO

Set	Items	Description
S1	1002	AUCTION? OR BID OR BIDS OR BIDDING OR TRADING(2N)(SYSTEM?? OR SERVIC?)
S2	0	(WHOLESALER? OR TRADER? OR DISTRIBUTOR? OR VENDOR? OR MERCHAN?) AND RETAILER?
S3	1	(RETAIL? AND WHOLESALE?)
S4	253	USER? OR PARTICIP? OR MEMBER? OR CUSTOMER? OR CLIENT? OR SUBSCRIB? OR PATRON?
S5	186	CONSUMER? OR BUYER? OR PURCHASER? OR SHOPPER? OR BIDDER?
S6	57	SELLER? OR RESELLER? OR SUPPLIER? OR VENDOR? OR MERCHANT?
S7	97	DEALER? OR BROKER? OR AGENT? OR MIDDLEM?N OR INTERMEDIAR?
S8	63	TRADER? OR DISTRIBUTOR? OR VENDOR? OR MERCHAN?
S9	0	S3(3W) (S4 OR S5 OR S6 OR S7 OR S8)
S10	19	(TWO OR THREE OR FIRST OR SECOND OR DIFFERENT OR SEVERAL) - (2W)(TYPE? OR KIND? OR GROUP? OR TIER? OR CATEGOR? OR CLASS?)
S11	175	NEW OR OLDER OR FORMER OR EXISTING OR PREVIOUS? OR REGULAR? OR EARLIER OR ESTABLISH? OR PREFERRED? OR PRIMARY OR VALUED
S12	17	(S10 OR S11) (3W) (S4 OR S5 OR S6 OR S7 OR S8)
S13	0	(NONMEMBER? OR NON()MEMBER?)
S14	1	NONPARTICIPANT? OR NON()PARTICIPANT?
S15	16	SUBSCRIBER? OR NONSUBSCRIBER?
S16	17	S13 OR S14 OR S15
S17	33	S2 OR S9 OR S12 OR S16
S18	2	(DISCRIMINAT? OR DIFFEREN?) (2N)PRICE?
S19	414	PREFERENC? OR ADVANTAG? (NOT N)USE
S20	6	DISCOUNT? OR PREMIUM
S21	415	S18 OR S19 OR S20
S22	21	(S17 AND S21)
S23	21	S22 AND S1
S24	146	IC=G06F-017/60
S25	9	S23 AND S24
S26	457	S4 OR S5 OR S6 OR S7 OR S8 OR RETAILER? OR WHOLESALER?
S27	12	S26 AND (S18 OR S20 OR PREFERENC?)
S28	7	S27 AND S24 NOT S25
S29	3	S20 AND S1 NOT (S25 OR S28)

all considered

from full text patents

Report for Examiner Forest Thompson Jr 09/253057   December 1, 2000   10:41

File 348:European Patents 1978-2000/Dec W01
    (c) 2000 European Patent Office
File 349:PCT Fulltext 1983-2000/UB=20001123, UT=20001102
    (c) 2000 WIPO/MicroPat

Set	Items	Description
S1	2845	AUCTION? OR BID OR BIDS OR BIDDING OR TRADING(2N)(SYSTEM?? OR SERVIC?)
S2	22	(WHOLESALER? OR TRADER? OR DISTRIBUTOR? OR VENDOR? OR MERCHAN?) (5N) RETAILER?
S3	34	(RETAIL? (5N) WHOLESALE?)
S4	1881	USER? OR PARTICIP? OR MEMBER? OR CUSTOMER? OR CLIENT? OR SUBSCRIB? OR PATRON?
S5	540	CONSUMER? OR BUYER? OR PURCHASER? OR SHOPPER? OR BIDDER?
S6	602	SELLER? OR RESELLER? OR SUPPLIER? OR VENDOR? OR MERCHANT?
S7	1536	DEALER? OR BROKER? OR AGENT? OR MIDDLEM?N OR INTERMEDIAR?
S8	493	TRADER? OR DISTRIBUTOR? OR VENDOR? OR MERCHAN?
S9	7	S3(3W) (S4 OR S5 OR S6 OR S7 OR S8)
S10	1401	(TWO OR THREE OR FIRST OR SECOND OR DIFFERENT OR SEVERAL) (2W)(TYPE? OR KIND? OR GROUP? OR TIER? OR CATEGOR? OR CLASS?)
S11	433	NEW (10W)(OLDER OR FORMER OR EXISTING OR PREVIOUS? OR REGULAR? OR EARLIER OR ESTABLISH? OR PREFERRED? OR PRIMARY)
S12	123	(S10 OR S11) (3W) (S4 OR S5 OR S6 OR S7 OR S8)
S13	4	MEMBER? (10W) (NONMEMBER? OR NON()MEMBER?)
S14	2	PARTICIPANT? (10W) (NONPARTICIPANT? OR NON()PARTICIPANT?)
S15	1	SUBSCRIBER? (10W) (NONSUBSCRIBER? OR NON()SUBSCRIBER?)
S16	6	S13 OR S14 OR S15
S17	146	S2 OR S9 OR S12 OR S16
S18	114	(DISCRIMINAT? OR DIFFEREN?) (2N)PRICE?
S19	2038	PREFERENC? OR ADVANTAG?
S20	189	DISCOUNT?
S21	2059	S18 OR S19 OR S20
S22	5	(S17(10N)S21)
S23	1	S22(20N)S1
S24	2376	S4 OR S5 OR S6 OR S7 OR S8 OR RETAILER? OR WHOLESALER?
S25	78	S24(20N)S18
S26	28	S25(10N)S1
S27	16	S24(10N)S20(10N)S1 NOT S26

all considered

full text patents

DIALOG

Report for Examiner Forest Thompson Jr 09/253057   December 1, 2000 09:35

File 146:Washington Post Online 1983-2000/Dec 01
      (c) 2000 Washington Post
File 387:The Denver Post 1994-2000/Nov 30
      (c) 2000 Denver Post
File 471:New York Times Fulltext-90 Day 2000/Dec 01
      (c) 2000 The New York Times
File 492:Arizona Repub/Phoenix Gaz 19862000/Nov 09
      (c) 2000 Phoenix Newspapers
File 494:St LouisPost-Dispatch 1988-2000/Nov 30
      (c) 2000 St Louis Post-Dispatch
File 498:Detroit Free Press 1987-2000/Nov 30
      (c) 2000 Detroit Free Press Inc.
File 630:Los Angeles Times 1993-2000/Nov 30
      (c) 2000 Los Angeles Times
File 631:Boston Globe 1980-2000/Nov 30
      (c) 2000 Boston Globe
File 632:Chicago Tribune 1985-2000/Dec 01
      (c) 2000 Chicago Tribune
File 633:Phil.Inquirer 1983-2000/Nov 30
      (c) 2000 Philadelphia Newspapers Inc
File 638:Newsday/New York Newsday 1987-2000/Nov 29
      (c) 2000 Newsday Inc.
File 640:San Francisco Chronicle 1988-2000/Nov 30
      (c) 2000 Chronicle Publ. Co.
File 641:Denver Rky Mtn News Jun 1989-2000/Nov 30
      (c) 2000 Scripps Howard News
File 702:Miami Herald 1983-2000/Nov 30
      (c) 2000 The Miami Herald Publishing Co.
File 703:USA Today 1989-2000/Nov 29
      (c) 2000 USA Today
File 704:(Portland)The Oregonian 1989-2000/Nov 30
      (c) 2000 The Oregonian
File 713:Atlanta J/Const. 1989-2000/Dec 01
      (c) 2000 Atlanta Newspapers
File 714:(Baltimore) The Sun 1990-2000/Nov 29
      (c) 2000 Baltimore Sun
File 715:Christian Sci.Mon. 1989-2000/Dec 01
      (c) 2000 Christian Science Monitor
File 725:(Cleveland)Plain Dealer Aug 1991-2000/Nov 19
      (c) 2000 The Plain Dealer
File 735:St. Petersburg Times 1989- 2000/Nov 01
      (c) 2000 St. Petersburg Times
File 477:Irish Times 1999-2000/Nov 30
      (c) 2000 Irish Times
File 710:Times/Sun.Times(London) Jun 1988-2000/Nov 30
      (c) 2000 Times Newspapers
File 711:Independent(London) Sep 1988-2000/Nov 30
      (c) 2000 Newspaper Publ. PLC

full text papers

Set   Items   Description
S1   298481 AUCTION? OR BIDDING OR TRADING(2N)(SYSTEM? ? OR SERVIC?)
S2   394   (WHOLESALER? OR TRADER? OR DISTRIBUTOR? OR VENDOR? OR MERC-
              HAN?) (5N) RETAILER?
S3   567   (RETAIL? (5N) WHOLESALE?)
S4   116958 USER? OR PARTICIP? OR MEMBER? OR CUSTOMER? OR CLIENT? OR S-
              UBSCRIB?
S5   74082 CONSUMER? OR BUYER? OR PURCHASER? OR SHOPPER? OR BIDDER?

S6   28651 SELLER? OR RESELLER? OR SUPPLIER? OR VENDOR? OR MERCHANT?
S7   62994 DEALER? OR BROKER? OR AGENT? OR MIDDLEM?N OR INTERMEDIAR?
S8   30174 TRADER? OR DISTRIBUTOR? OR VENDOR? OR MERCHAN?
S9   37 S3(3W) (S4 OR S5 OR S6 OR S7 OR S8)
S10   12845 (TWO OR THREE OR FIRST OR SECOND OR DIFFERENT OR SEVERAL) -
             (2W)(TYPE? OR KIND? OR GROUP? OR TIER? OR CATEGOR? OR CLASS?)
S11   8044 NEW (10W)(OLDER OR FORMER OR EXISTING OR PREVIOUS? OR REGU-
             LAR? OR EARLIER OR ESTABLISH? OR PREFERRED? OR PRIMARY)
S12   528 (S10 OR S11) (3W) (S4 OR S5 OR S6 OR S7 OR S8)
S13   1465 MEMBER? (10W) (NONMEMBER? OR NON()MEMBER?)
S14   0 PARTICIPANT? (10W) (NONPARTICIPANT? OR NON()PARTICIPANT?)
S15   5 SUBSCRIBER? (10W) (NONSUBSCRIBER? OR NON()SUBSCRIBER?)
S16   1469 S13 OR S14 OR S15
S17   2412 S2 OR S9 OR S12 OR S16
S18   1230 (DISCRIMINAT? OR DIFFEREN?) (2N)PRICE?
S19   16697 PREFERENC? OR ADVANTAG?
S20   15505 DISCOUNT
S21   32252 S18 OR S19 OR S20
S22   28 (S17(10N)S21)
S23   3 S22(20N)S1
S24 192955 S4 OR S5 OR S6 OR S7 OR S8 OR RETAILER? OR WHOLESALER?
S25   3903 S24(10N)S21
S26   616 S25(20N)S1
S27   26 S26(5N)S18
S28   18 S27 NOT (PY>1998 OR S23)
S29   16 S26(5N)(S20(5N)PRIC?)
S30   9 S29 NOT (PY>1997 OR S23 OR S28)
S31   147 S13(20N)S1
S32   92 S31 NOT PY>1997
S33   2 S32(10N) PRIC?

all considered

File 350:Derwent WPIX 1963-2000/UD,UM &UP=200061
        (c) 2000 Derwent Info Ltd
File 347:JAPIO Oct 1976-2000/Jul(UPDATED 001114)
        (c) 2000 JPO & JAPIO

Set	Items	Description
S1	1002	AUCTION? OR BID OR BIDS OR BIDDING OR TRADING(2N)(SYSTEM? ? OR SERVIC?)
S2	0	(WHOLESALER? OR TRADER? OR DISTRIBUTOR? OR VENDOR? OR MERCHAN?) AND RETAILER?
S3	1	(RETAIL? AND WHOLESALE?)
S4	253	USER? OR PARTICIP? OR MEMBER? OR CUSTOMER? OR CLIENT? OR SUBSCRIB? OR PATRON?
S5	186	CONSUMER? OR BUYER? OR PURCHASER? OR SHOPPER? OR BIDDER?
S6	57	SELLER? OR RESELLER? OR SUPPLIER? OR VENDOR? OR MERCHANT?
S7	97	DEALER? OR BROKER? OR AGENT? OR MIDDLEM?N OR INTERMEDIAR?
S8	63	TRADER? OR DISTRIBUTOR? OR VENDOR? OR MERCHAN?
S9	0	S3(3W) (S4 OR S5 OR S6 OR S7 OR S8)
S10	19	(TWO OR THREE OR FIRST OR SECOND OR DIFFERENT OR SEVERAL) - (2W)(TYPE? OR KIND? OR GROUP? OR TIER? OR CATEGOR? OR CLASS?)
S11	175	NEW OR OLDER OR FORMER OR EXISTING OR PREVIOUS? OR REGULAR? OR EARLIER OR ESTABLISH? OR PREFERRED? OR PRIMARY OR VALUED
S12	17	(S10 OR S11) (3W) (S4 OR S5 OR S6 OR S7 OR S8)
S13	0	(NONMEMBER? OR NON()MEMBER?)
S14	1	NONPARTICIPANT? OR NON()PARTICIPANT?
S15	16	SUBSCRIBER? OR NONSUBSCRIBER?
S16	17	S13 OR S14 OR S15
S17	33	S2 OR S9 OR S12 OR S16
S18	2	(DISCRIMINAT? OR DIFFEREN?) (2N)PRICE?
S19	414	PREFERENC? OR ADVANTAG? (NOT N)USE
S20	6	DISCOUNT? OR PREMIUM
S21	415	S18 OR S19 OR S20
S22	21	(S17 AND S21)
S23	21	S22 AND S1
S24	146	IC=G06F-017/60
S25	9	S23 AND S24
S26	457	S4 OR S5 OR S6 OR S7 OR S8 OR RETAILER? OR WHOLESALER?
S27	12	S26 AND (S18 OR S20 OR PREFERENC?)
S28	7	S27 AND S24 NOT S25
S29	3	S20 AND S1 NOT (S25 OR S28)

all considered

non full text patents

Report for Examiner Forest ...ompson Jr 09/253057   December 1, 20.. 11:53

DIALOG

File 474:New York Times Abs 1969-2000/Nov 30
    (c) 2000 The New York Times
File 475:Wall Street Journal Abs 1973-2000/Nov 30
    (c) 2000 The New York Times
File 473:Financial Times Abstracts 1998-2000/Nov 30
    (c) 2000 The New York Times

Set	Items	Description
S1	50220	AUCTION? OR BID OR BIDS OR BIDDING OR TRADING(2N)(SYSTEM?? OR SERVIC?)
S2	1186	(WHOLESALER? OR TRADER? OR DISTRIBUTOR? OR VENDOR? OR MERCHAN?) AND RETAILER?
S3	1150	(RETAIL? AND WHOLESALE?)
S4	166781	USER? OR PARTICIP? OR MEMBER? OR CUSTOMER? OR CLIENT? OR SUBSCRIB? OR PATRON?
S5	63882	CONSUMER? OR BUYER? OR PURCHASER? OR SHOPPER? OR BIDDER?
S6	16513	SELLER? OR RESELLER? OR SUPPLIER? OR VENDOR? OR MERCHANT?
S7	54400	DEALER? OR BROKER? OR AGENT? OR MIDDLEM?N OR INTERMEDIAR?
S8	30252	TRADER? OR DISTRIBUTOR? OR VENDOR? OR MERCHAN?
S9	126	S3(3W) (S4 OR S5 OR S6 OR S7 OR S8)
S10	6365	(TWO OR THREE OR FIRST OR SECOND OR DIFFERENT OR SEVERAL) (2W)(TYPE? OR KIND? OR GROUP? OR TIER? OR CATEGOR? OR CLASS?)
S11	1017861	NEW OR OLDER OR FORMER OR EXISTING OR PREVIOUS? OR REGULAR? OR EARLIER OR ESTABLISH? OR PREFERRED? OR PRIMARY OR VALUED
S12	11884	(S10 OR S11) (3W) (S4 OR S5 OR S6 OR S7 OR S8)
S13	357	(NONMEMBER? OR NON()MEMBER?)
S14	14	NONPARTICIPANT? OR NON()PARTICIPANT?
S15	2308	SUBSCRIBER? OR NONSUBSCRIBER?
S16	2679	S13 OR S14 OR S15
S17	15664	S2 OR S9 OR S12 OR S16
S18	397	(DISCRIMINAT? OR DIFFEREN?) (2N)PRICE?
S19	11852	PREFERENC? OR ADVANTAG? (NOT N)USE
S20	13124	DISCOUNT? OR PREMIUM
S21	25180	S18 OR S19 OR S20
S22	490	(S17 AND S21)
S23	7	S22 AND S1
S24	301344	S4 OR S5 OR S6 OR S7 OR S8 OR RETAILER? AND WHOLESALER?
S25	6	S24 AND S18 AND S1 NOT S23
S26	74	S24 AND S20 AND S1 NOT (PY>1997 OR S23 OR S25)
S27	35	S26 AND AUCTION?
S28	21	S27 AND PRIC?

all considered

*non full text
newspapers*

called CETES. See Steven R. Umlauf, "An Empirical Study of the Mexican
Treasury Bill Auction ," Journal of Financial Economics, 33 (1993), pp.
313-40.

24 In the 181 discriminatory - price auctions analyzed, aggregate
competitive bidder profits averaged $36,000 per auction , with the six
largest bidders earning over 80 percent of total competitive auction
profits. But in the 26 uniform-price auctions analyzed, aggregate
competitive bidder profits averaged -$3000 per auction (essentially zero).
And the average profits of the...

  37/3,K/6   (Item 6 from file: 15)
  DIALOG(R)File 15:ABI/Inform(R)
  (c) 2000 Bell & Howell. All rts. reserv.

00847614 94-97006
Second price auctions without expected utility
Neilson, William S
Journal of Economic Theory v62n1 PP: 136-151 Feb 1994
ISSN: 0022-0531 JRNL CODE: IJET

...ABSTRACT: the number of bidders or changing the reserve price, changes
the equilibrium bid function. Finally, the optimal reserve price is
dependent on the number of bidders , and expected revenue in the 2nd
 price auction is different from expected revenue from an ascending
bid auction . All of these results are different from the corresponding
results in expected utility theory.   ...

  37/3,K/7   (Item 7 from file: 15)
  DIALOG(R)File 15:ABI/Inform(R)
  (c) 2000 Bell & Howell. All rts. reserv.

00844464 94-93856
Will the information superhighway be the death of retailing?
Sherman, Stratford
Fortune v129n8 PP: 98-110; Asian 56-64; European 60-68 Apr 18, 1994
ISSN: 0015-8259 JRNL CODE: FOR
WORD COUNT: 3250

...TEXT: boards where people pool their knowledge by candidly discussing
their experiences with products. Do that, and watch the mystery and cachet
of smoke-and-mirrors merchandising evaporate. Products get clearly
 differentiated by quality, price , and details of delivery, while
selling becomes an auction . Says Gates: "There will be an efficiency in
this marketplace that people have to wrap their minds around."

The requirements for this Tomorrowland would be...

  37/3,K/8   (Item 8 from file: 15)
  DIALOG(R)File 15:ABI/Inform(R)
  (c) 2000 Bell & Howell. All rts. reserv.

00823720 94-73112
Auctions: Theory and applications
Feldman, Robert A; Mehra, Rajnish
International Monetary Fund Staff Papers v40n3 PP: 485-511 Sep 1993

...TEXT: units are auctioned at the same time, this procedure is called a discriminatory auction. The sealed bids are sorted from high to low, and the auctioned items are awarded at the highest bid prices until the supply is exhausted. Thus, the auction discriminates among bidders in the sense that they can pay different prices according to the amount they bid (see Figure 1c). (Figure 1c omitted) The terminology "first-price" or "discriminatory" auction follows the academic literature. In the financial community--and here is where one source of confusion may arise--this type of auction is referred to...it reveals information about rival bidders' valuations and permits a dynamic updating of an individual bidder's personal valuation. This updating results in more aggressive bidding , thereby raising the seller 's revenue. A first-price (discriminatory) auction awards the object to the highest bidder . Thus, other bidders place a lower value on the object, reducing the profit that the winning bidder can hope for in the resale market. In response, bidders in...

37/3,K/9   (Item 9 from file: 15)
DIALOG(R)File 15:ABI/Inform(R)
(c) 2000 Bell & Howell. All rts. reserv.

00759230 94-08622
Auctions\ A sampling of techniques
Feldman, Robert A; Mehra, Rajnish
Finance & Development v30n3 PP: 32-35 Sep 1993
ISSN: 0015-1947 JRNL CODE: FID
WORD COUNT: 3276

...ABSTRACT: are the most familiar type. Starting with a low first bid, the item is sold to the highest bidder. In a Dutch or descending-price auction , the price starts high and lowers until a buyer claims the item. A first or discriminatory - price auction is a sealed-bid auction wherein the highest bidder is awarded the item. A second or uniform-price auction is a sealed-bid auction wherein the highest bidder is awarded the item at the second highest price. In a double auction, both sellers and buyers submit bids, and sell...
...TEXT: The sealed bids are sorted from high to low, and items are awarded at: the highest bid prices until the supply is exhausted. Thus, the auction discriminates between bidders in the sense that they can pay different prices according to the amount they bid. Confusion sometimes arises because, in the financial community, this auction format is frequently referred to as an English auction; in the United Kingdom, it is called an American auction; it is also referred to as...

37/3,K/10   (Item 10 from file: 15)
DIALOG(R)File 15:ABI/Inform(R)
(c) 2000 Bell & Howell. All rts. reserv.

00750530 93-99751
Using auctions to allocate and price long-term credit
Guasch, J Luis; Glaessner, Thomas
World Bank Research Observer v8n2 PP: 169-194 Jul 1993
ISSN: 0257-3032 JRNL CODE: WBA
WORD COUNT: 11799

ABSTRACT: Auctions play an important role in economics. In their most basic
form, they are one of the ways in which various commodities and financial
assets are allocated to individuals and firms, particularly in a
market-oriented setting. The use of auction mechanisms to guide price
determination and the allocation process can offer certain advantages which
are discussed. A study assesses alternative auction techniques for pricing
and allocating various financial instruments, such as government
securities, central bank refinance credit, and foreign exchange. Before
recommending appropriate formats for auctioning these items, the study
discusses basic auction formats, assessing the advantages and disadvantages
of each, based on the existing, mostly theoretical, literature. Auction
techniques can be usefully employed for a broad range of items and their
application is of particular relevance to the impetus in many parts of the
world toward establishing market-oriented economies.

TEXT: Auctions play an important role in economics. In their most basic
form, they are one of the ways in which various commodities and financial
assets are allocated to individuals and firms, particularly in a
market-oriented setting. Examples of items that are commonly auctioned
include original art, livestock, fresh fish, used cars, construction
contracts, and a range of financial assets such as government securities,
central bank refinance credit, foreign exchange, and equity shares. These
items exhibit considerable diversity, but a common denominator among them
is that the valuation of each item varies enough to preclude any direct
pricing schedule.

The use of auction mechanisms to guide price determination and the
allocation process can offer certain advantages, which this paper
discusses. The major effort taking place in many parts of the world to
establish market-oriented institutions makes a paper on these mechanisms
opportune. Against this background, one of the main goals of this paper is
to survey the extensive literature on auctions in order to shed some light
on the advantages and disadvantages of various auction techniques.(1) A
second main goal is to assess the application of alternative auction
techniques to various financial instruments, using the three examples of
government securities, central bank refinance credit, and foreign exchange.

We emphasize that the implications of theoretical models do not easily
carry over into real world settings. Therefore, our recommendations on the
appropriate auction technique for different assets depend heavily on
individual country circumstances. Indeed, the array of country experiences
would suggest no clear-cut answer to the question of which is the
appropriate auction technique. In this connection, it is instructive to
note that in looking at individual country experiences across a range of
countries--both industrial and developing--techniques used to auction
similar items vary considerably.

This experience includes several countries that in auctioning government
securities have awarded them at whatever price was bid (including France,
Germany, Japan, and the United Kingdom) and others that have charged a
single, market-clearing price (Denmark and Switzerland).(2) Some countries
have recently changed the way they run their auctions. Mexico in 1990
shifted from a multiple-price to a uniform-price approach for treasury
bills and then in 1993 shifted back.(3) Italy in 1991 switched from uniform
to multiple pricing in its local-currency treasury bill auctions, but has

auctioned its treasury bonds and ECU-denominated bills on a uniform-price basis. Currently, in the United States, the U.S. Treasury is experimenting with uniform-price auctions for some government securities while also running discriminatory auctions.

Relevant examples are also found for foreign exchange and refinance credit. Several countries have conducted discriminatory-price or Dutch auctions for refinance credit (Romania) and for foreign exchange (Bolivia, Ghana, Jamaica, and Zambia). Other countries have used uniform-price auctions for refinance credit (the former Czechoslovakia) and for foreign exchange (Guinea, Nigeria, and Uganda).(4) Double auctions have been used for foreign exchange (Romania).

I. TYPES OF AUCTIONS

An auction is simply an allocative mechanism. Since auctions can play a valuable role in the price discovery process, they are most useful in situations where the item being auctioned does not have a fixed or determinable market value or where the seller is uncertain about the market price. These situations typically involve some degree of informational and cost asymmetries in the sense that economic agents differ in their access to, and evaluation of, information pertaining to the auctioned commodity. Auctions may be for a single object or unit--as is typical in the proceedings of such well-known auction houses as Sotheby's and Christie's--or for a "lot" of nonidentical items, as with land tracts (a practice in many countries) or used cars (a practice in the wholesale U.S. automobile market). Alternatively, auctions may be for multiple units of a homogeneous item, such as gold or treasury securities.

Our concern in this paper is mostly with auctions for multiple homogeneous assets, such as government securities, refinance credit, and foreign exchange. The theoretical literature relies frequently, however, on the assumption of a single unit being auctioned. Partly for this reason, the definitions given below cover both single-and multiple-unit auctions. Of course, auctions of single units are also relevant in economics. For example, countries' efforts to privatize may involve auctioning a single item, such as a public enterprise.

Following the pioneering work of Vickery (1961), we distinguish between four primary types of auctions, classifying each according to its corresponding institutional arrangement. Each of the following classifications entails its own set of rules that affects the bidding strategies of the auction participants and therefore the outcome of the auction itself.

English auction. This type of auction is also referred to as an ascending price auction and is commonly seen in the art world. It is perhaps the most familiar form of auction. Starting with a low first bid or a specified reservation price--that is, a price below which the item will not be sold--the auctioneer solicits increasingly higher bids. As the bid price increases, there are normally fewer takers. The process continues in the case of a single item until that item is "sold!" to the last and highest bidder for the amount bid (see Figure 1a). (Figure 1a omitted) In an auction involving multiple units, the process continues until arriving at a price at which the fixed amount supplied at auction is just matched by total demand.

Dutch auction. This type of auction is also referred to as a descending-price auction. It gets its name from the technique used in the Netherlands for auctioning produce and fresh flowers. The bidding commences at a high level and is progressively lowered until a buyer claims the item being auctioned by shouting "mine!" (see Figure 1b). (Figure 1b omitted) Practitioners have long since streamlined the proceedings through the use of an automated "clock" with a hand running counterclockwise through progressively lower prices. Any buyer can stop the descent by pressing a button when an acceptable price is reached. When multiple units are being auctioned, there are normally more willing takers as the price declines; this process continues until arriving at a price whereby the fixed amount supplied is just matched by total demand.

First-price auction. This type of auction is an example of a sealed-bid auction, as opposed to the above two formats, which are open auctions. The term "first price" is commonly used when referring to the sale of a single item. The highest bidder is awarded the item at a price equal to the amount bid. When multiple units are auctioned at the same time, this procedure is called a discriminatory auction. The sealed bids are sorted from high to low, and the auctioned items are awarded at the highest bid prices until the supply is exhausted. Thus, the auction discriminates among bidders in the sense that they can pay different prices according to the amount they bid (see Figure 1c). (Figure 1c omitted) The terminology "first-price" or "discriminatory" auction follows the academic literature. In the financial community--and here is where one source of confusion may arise--this type of auction is referred to as an English auction; an exception being in the United Kingdom where it is called an American auction. This type of auction is also referred to as a multiple-price (or, in some cases, a multiple-yield) auction.

Second-price auction. This type of auction is also a sealed-bid auction. When a single item is auctioned, the highest bidder is awarded the item at a price equal to the highest unsuccessful bid--hence, the name second price. The multiple-unit extension of the second-price, sealed-bid auction is referred to as a uniform-price auction (or competitive auction), since all winning bidders receive the auctioned items at the same price (see Figure 1d). (Figure 1d omitted) Here, some confusion in terminology also arises from the use of the term "second price" or "uniform price" auction because in the financial community these auctions are referred to as "Dutch auctions," although this would appear to be a misnomer.(5) This type of auction is also referred to as a marginal-price auction.

A final type of auction worthy of mention is a double auction. Using this format, both sellers and buyers submit bids, which are then ranked from highest to lowest to generate demand and supply profiles. From these profiles, the maximum quantity exchanged can be determined by matching sell offers, starting with the lowest price and moving up, with demand bids, starting with the highest price and moving down. The "equilibrium" price may, however, be indeterminate using this methodology.(6) An example of a double auction is the market-clearing mechanism in organized exchanges, like stock exchanges and commodity markets, where a specialist matches bid and ask prices in a "specialist's book," making the market for a particular security traded on the exchange.
In addition to the institutional arrangements governing the workings of a particular type of auction, a second aspect of classifying different auction mechanisms concerns how each bidder values the item(s) on the auction block. Economists customarily distinguish between "private-value" auctions and "common-value" auctions. The former term refers to objects acquired for personal consumption with no primary motive to resell. The bidder therefore has a personal maximum that he or she would be willing to pay, quite independent of the valuations of rival bidders. If this is the case, one speaks of the bidder as displaying "independent private values." A frequently cited example is an object of art purchased for personal pleasure rather than for profitable resale.

The same painting, however, can be purchased to be resold. The bid is then predicated on both personal valuation and the valuation of prospective buyers in the secondary market. This situation is referred to as the common-value assumption because each bidder places the same value on the object--that is, each one tries to estimate what the object is ultimately worth on the basis of the same objective standard. This common value may be an unobservable variable at the time of the auction, as would be the case when a government security is purchased to be resold later in the secondary market.
In general, all auctions are "correlated-value auctions," a category that includes the common-value and private-value auctions as polar examples. This concept of correlated values captures the notion that in each auction situation, bidders' values are to some extent related to each other: they are correlated. Milgrom and Weber (1982) use the term "affiliation" to express the same idea more precisely. However, as Rasmusen (1990, p. 246)

points out, "as always , modeling, we must trade off de. .riptive accuracy against simplicity, and private value versus common value is an appropriate simplification." We retain this distinction throughout the paper.

For the four basic types of auctions just defined, Table 1 summarizes the rules associated with each institutional arrangement (see Rasmusen (1990)).(7) (Table 1 omitted) It also outlines some simple aspects of the bidder's strategy, which are implied by the rules and payoffs to the bidder.

II. AUCTION THEORY

Since auctions follow well-defined rules, they can be viewed as "games," making the application of game theory an appropriate paradigm for gaining insight into their dynamics.(8) But to gain these insights, the theoretical literature relies on a number of simplifying assumptions. Although these assumptions allow one to derive key results, they make the application of auction theory to real world settings an exercise to be undertaken with caution. In addition to reviewing some common assumptions, this section discusses auction strategy, first from the bidder's and then from the seller's perspective, before turning to issues of economic efficiency and the incentives to collude under different auction formats.

The assumptions most commonly used, depending on the context, are

(1) Bidders are risk neutral(9)

(2) Either the independent private-value assumption applies or the common-value assumption applies; and

(3) The bidders are symmetric--that is, they use the same distribution function to estimate their valuations--implying bidders cannot discern differences among their competitors.

Following the earlier theoretical literature, it is initially assumed that one item is being auctioned.

BIDDER'S PERSPECTIVE(10)
We briefly examine bidding strategies that emerge from the intersection of auction format rules with the earlier stated assumptions regarding bidder values.

PRIVATE-VALUE ASSUMPTION

If, as is fairly standard, the English auction has a specified bid increment, then, in the limit, as the increment becomes infinitesimal, the English and second-price formats result in the same price and allocation, or more formally in the same "normal form." Similarly, the Dutch auction is strategically equivalent to the first-price, sealed-bid auction since there is a one-to-one mapping between the strategy sets and the equilibrium of the two games. In both of the latter formats, no relevant information is revealed in the course of the proceedings, only at the conclusion of the auction when it is too late for any bidder to act upon or change a bid. In the first-price format, the bid is relevant only if it is the highest. Likewise, in the Dutch format, the stopping price or bid is irrelevant unless it is the highest (the winning bid stops the price descent).

COMMON-VALUE ASSUMPTION

Under this assumption the equivalence between the English and the second-price auction does not hold,(11) although between the Dutch and first-price auctions it continues to hold. See Milgrom and Weber (1982) and Smith (1987).

What optimal strategies evolve in the course of the competitive bidding process under the common-value assumption? Take the example of competitive bidding for a construction contract. In this case, the contract is awarded to the lowest bidder. Assume that bidders are identical except that their

valuations are based . information to which they (di__erentially) have access. In calculating his or her bid, each player faces a trade-off between the probability of winning the contract and the expected profit if he or she does. If all contenders specify their bids by adding a markup to their estimated costs, the winning bid will have the lowest estimated project costs and will, on average, be too low. In the case of auctions for items such as art or mining rights, where the highest bidder wins, the winning bidder is faced with the realization that his or her assessment of the item's value exceeded all other bidders' assessments. That is to say, the highest bidder wins the auction but loses by decreasing his or her expected profit! This contrary observation is termed the "winner's curse." The best-known study in economic literature of this phenomenon is by Capen, Clapp, and Campbell (1971), who look at the bidding for offshore mining rights auctioned by the U.S. Government. One implication of the "winner's curse" is that inexperienced bidders profit less than expected since such bidders are more likely to place the highest bid when they have overestimated the value of the item. A bidder would be disconcerted to discover that he or she had outbid 20 experts! Experienced bidders are aware of the winner's curse and factor it into their calculations.

The winner's curse has several implications for optimal bidding strategies. In a first-price auction, for example, the winner by implication can expect a lower profit when he or she attempts to resell, since competing bidders display a lower valuation of the object. Being aware of this possibility, bidders are likely to "shade" their bids below their own estimates in an effort to move closer toward the market consensus.(12) Other things being equal, as the number of bidders increases, it is prudent to bid more conservatively, since the range of the distribution of bids, and thus the highest bid, is likely to expand with the number of bidders. Thus, the winner's curse is reinforced as the number of bidders increases, creating a greater shading of bids below their true estimate.

Second, the gap between the highest bid and the "true" value of the item decreases as the amount of information available about the auctioned item rises. The winner's curse is therefore muted by increasing information about the value of an auctioned item. With the curse muted, it is optimal for bidders to be less conservative in their bids, implying that, as more information is available, bidding will become more aggressive and the selling price will, on average, be higher.

Milgrom (1987, p. 6) provides a useful summing up: "The most important lessons to be learned...are that the returns in bidding come from cost and information advantages, that naive bidding strategies can squander these advantages and that bidders without some advantage have little hope of earning much profit, but could with a little bit of carelessness suffer large losses."

SELLER'S PERSPECTIVE

The two assumptions described above also influence and modify seller behavior.

PRIVATE-VALUE ASSUMPTION

Under specific assumptions, the theoretical literature demonstrates that all four basic types of auctions will yield the same expected price and revenue to the seller.(13) This central result in auction theory, termed "the revenue equivalence theorem" (Vickery (1961)), assumes that bidders display symmetric and independent private values in auctions that are free of distortions and that have only a single unit sold. The theorem does not imply that every realization of the game, independent of the auction type, will yield the same price and revenue, only that the expected price and revenue are the same. The revenue equivalence theorem does imply, however, that the specific auction format chosen by the seller in this stylized theoretical world is not crucial, since each format yields, on average, the same payoffs to the seller.

A construct termed the "revelation principle" is used to prove a number of

theoretical proposition in auction theory, inclu..ng the revenue
equivalence theorem. It describes the optimal mechanism from the seller's
point of view.(14) The term "mechanism" in this context acts as a black
box: a process that takes bids as inputs and produces the winning bidder
and the winning price as outputs. Thus, each of the auction forms can be
viewed as a mechanism. In a direct mechanism, each bidder is simply asked
to report his or her personal valuation of the item. A mechanism is termed
"incentive compatible" if the auction is structured in such a way that it
is in the bidder's interest to state honestly his or her personal valuation
of the object--for example, if the proceedings require each bidder to state
a valuation and the object is awarded to the bidder with the highest
valuation. Under the assumption of private value, this is precisely what
occurs in the first-price, sealed-bid auction. Each bidder is optimizing
when he or she submits the bid, and the revelation principle designs the
payoff structure so as to make it optimal to be honest.

Note that the revelation principle is a purely theoretical construct, and
few, if any, resource allocation procedures used in practice are direct
incentive-compatible mechanisms. Its main application is to facilitate the
search for a resource allocation mechanism that is optimal, subject to the
constraints of asymmetric information.(15)

COMMON-VALUE ASSUMPTION

Under the set of common-value assumptions, we see different results and
also move closer to some of the auctioned items with which we are
concerned, such as government securities; in these auctions, assets are
acquired with the intention of profitable resale in secondary markets. More
specifically, it can be shown that the revenue equivalence theorem does not
necessarily hold under the assumption of common values when, in determining
a bid, an individual bidder faces common uncertainties, such as energy
prices, pollution considerations, and changing consumer tastes, that might
impinge on possible resale values. In these circumstances, Milgrom and
Weber (1982) demonstrate that the expected revenue from selling a single
object in one of the four auction formats can be ranked from highest to
lowest:

(1) The English, ascending-price auction;

(2) The second-price, sealed-bid auction;

(3) Tied: The Dutch auction and the first-price, sealed-bid auction.

The rankings clearly illustrate the advantage of increased information. As
an English auction proceeds, it reveals information about rival bidders'
valuations and permits a dynamic updating of an individual bidder's
personal valuation. This updating results in more aggressive bidding,
thereby raising the seller's revenue. A first-price (discriminatory)
auction awards the object to the highest bidder. Thus, other bidders place
a lower value on the object, reducing the profit that the winning bidder
can hope for in the resale market. In response, bidders in first-price
auctions will tend to shade their bids well below their estimates,
resulting in reduced revenue for the seller. The same reasoning applies to
the strategically equivalent Dutch auction. In the second-price (uniform),
sealed-bid format, by contrast, the winner pays the bid of the next highest
bidder. Hence, bidders would tend to offer higher bids than in a
first-price auction bid, secure in the knowledge that they will not be
disadvantaged if rival bidders' valuations are much lower.

As we have seen, the theoretical analysis deals with bidders who demand
only one indivisible unit of the commodity being auctioned. If bidders want
more than one unit--as in the government securities market--and are allowed
to submit bids for different quantities at different prices, then the above
results need not hold. In particular, Maskin and Riley (1989) show that in
the independent and private-value models the unit-demand assumption (in
which each buyer wishes to purchase at most a single unit) is crucial for
revenue equivalence results. The theoretical situation in which this
assumption does not hold has not been fully worked out, but it is

conjectured that the ec .omic logic of the arguments for ˎne single-object environment will carry over. No proposition states, however, that the revenue rankings given above will hold when the unit-demand assumption is relaxed.(16) Hence, on purely theoretical grounds one cannot assert that a particular auction format is superior to another. Indeed, one cannot overemphasize that the nuances and details of any particular auction are exceedingly important in deciding which format to use.

A number of theoretical studies have also suggested that uniform pricing is revenue superior to discriminatory pricing.(17) The crux of the matter is that in using a uniform-price format, the winner's curse is muted, owing to the linkage of the final auction price to the highest losing bid. Put simply, the essence of the "linkage principle" is that auctions yielding the highest payoffs to the seller are those that are most effective in undermining the benefit to bidders of holding private information, thus transferring some of the profits from bidder to seller. As Milgrom (1987, p. 4) puts it, "privacy is undermined by linking price to information other than (but correlated with) the winning bidder's private information."

In any auction format, the seller can influence bids, and hence the final payoffs, by revealing information about the auctioned object. Intuitively, an individual bidder's expected profit is highest when he or she can exploit information asymmetries--that is, when the bidder has access to useful information about the object's "equilibrium" value that is not held by other auction participants. In general, more accurate information about the item's "equilibrium" value mitigates the effect of the winner's curse, and hence the price-dampening effect of bidder caution.(18) Thus, the seller's optimal strategy is to reveal all available information and to link the price to exogenous indicators of value. If a seller adopts a policy of revealing information, the price becomes linked to the seller's information; this undermines the winner's surplus value, siphoning off some portion to the seller.(19)

EFFICIENCY CONSIDERATIONS

The theoretical literature on auctions puts less emphasis on economic efficiency than on other aspects of the various auction formats, such as their revenue-generating potential. Nevertheless, it is extremely important to underscore the efficiency of auctions.(20) Available evidence indicates that auctions, in the absence of distortions, function efficiently--that is, they ensure that resources accrue to those that value them most highly (and where they will be most productive) and that sellers achieve the maximum value for the auctioned item. It can be shown on theoretical grounds that there exists an equilibrium, arising from the competitively submitted bids, in which the auctioned item is allocated endogenously in an efficient way when the price of the item is unknown. Empirical evidence also suggests that, in the absence of distortionary factors, auctions function efficiently.(21) In addition, the auction mechanism can achieve this objective more effectively than alternative trade arrangements, such as price setting by the seller or negotiation between buyer and seller.

Of the four auction formats, the English and second-price settings result in an efficient or Pareto-optimal allocation in the case of private-value auctions.(22) Complications arise in the case of the first-price, sealed bid auction and the Dutch (descending-price) auction. In the most commonly analyzed case of "symmetric" environments--where bidders are identical, draw their information from the same distribution, and cannot differentiate among their competitors--these auction formats are efficient. In general, however, with first-price, sealed-bid and Dutch formats, it is not optimal to bid one's reservation price, a condition that results in bid shading and consequently an inefficient allocation.(23)

In the case of common values, efficiency also requires the assumption that all bidders base their strategies on information drawn from the same distribution, as opposed to asymmetric information. Under the more realistic assumption that different bidders have private information, the analysis is not so straightforward. In particular, Maskin (1992) distinguishes between two cases: (a) where private information can be modeled as a scalar (that is, as a single item of information); and (b)

where the bidders' priva . information can be represented _y a vector (that is, by multiple units of information). In the former case, under fairly general conditions, the English auction is efficient but the uniform-price (second-price, sealed-bid) format is efficient only if there are two bidders. In this case, the first-price and the Dutch auctions will typically not be efficient except in highly restrictive cases. In the second case, when bidders have several items of private information, efficiency is unattainable in any auction format. It can be shown, however, that when the informational asymmetry among bidders is not too great, the English and second-price auctions function better than alternative formats.(24)

To summarize the evidence on efficiency, the auction of choice would be the English auction followed closely by the second-price, sealed-bid auction. The two formats are identical only in the case where there are two bidders.

COLLUSION

The extent to which incentives to collude vary under different auction formats can be of great practical concern in deciding on which type of auction to use. Indeed, the indictment in the United States of a primary securities dealer in 1991 for fraudulent activities in the government securities market has focused attention on the collusive potential of standard auction formats. These concerns are briefly dealt with below. It is important to keep in mind that all auctions are susceptible to collusive behavior--what we review here is the comparative incentive for collusion under different auction formats.

A basic hypothesis, first formulated in the literature by Mead (1987), is that ascending-bid formats are more susceptible to collusion than sealed-bid auctions. This belief may explain the popularity of sealed bidding, even though the ascending-bid format has superior revenue-generating potential. Intuitively, auction formats where covert "side deals" are possible are more likely to support bidder manipulation. Thus, an open-bid English auction is particularly vulnerable to manipulation, since a subset of bidders (a "ring") must simply agree not to outbid each other to effectively lower the winning bid. The item can then be reauctioned among the ring members, and the profits shared. The open format inculcates adherence to the agreement since any ring member attempting to exploit the ring by a side deal of his or her own would, effectively, negate the ring and restore the auction to a competitive footing. The open format ensures that compliance among ring members is easily monitored. It should be noted, however, that the problems with collusion under the English format should diminish as either the actual number of bidders or the potential number of bidders increases. Intuitively, for a ring to be successful it must have a significant proportion of the total number of bidders under its control. To achieve this result, it is advantageous to have no new bidders entering the auction. Further, with a higher number of actual bidders, it becomes more difficult to control a significant proportion of them, and more than one ring can form and try to outbid the others.
Sealed-bid auctions, by comparison, are vulnerable to collusion that involves the auctioneer--that is, between the auctioneer and one or more bidders, or between the auctioneer and the seller.(25) This format is, however, less prone to rings, since sealed bidding tempts the participants in any conspiracy to bid just above the agreed-on price, effectively dissolving the cartel. This result also holds true for the Dutch format, even though it is an open, instead of sealed-bid, auction, since the first bidder to defect from the ring ends the auction. As Smith (1987, p. 52) points out, the Dutch auction is perhaps most effective against collusion: "In this auction, since none of the losing bids is known to anyone, they cannot even be leaked let alone announced and conspiracy is therefore infeasible." Milgrom (1987, p. 27) succinctly states that "collusion is hardest to support when secret price concessions are possible, and easiest to support when all price offers must be made publicly."

Theoretically at least, the four formats can be ranked from most prone to collusion to least prone:

(1) English auction;

(2) Uniform second-price auction;
(3) Discriminatory first-price auction;

(4) Dutch auction.

The English auction is potentially the most susceptible to collusion because there is no incentive to betray the ring--more aggressive bidding does not win the item--and such attempts are highly visible to the other members of the ring. On the other hand, the Dutch, descending-price, auction is potentially the least susceptible to collusion because of the difficulties that ring members would have supporting and enforcing collusive behavior. Once a ring member bids more aggressively than was agreed, his or her actions are not only obvious but the auction is won before the others can react.

III. APPLICATIONS

This section discusses three applications of the various mechanisms for auctioning different items, taking in turn the auction of government securities, refinance credit, and foreign exchange. At the outset of this section, it should be emphasized that there is no unambiguous answer to the question of which is the "best" auction technique to use. This conclusion reflects the difficulties of applying the theoretical literature to real world settings as well as the importance of individual country circumstances.

GOVERNMENT SECURITIES

There is considerable controversy over the types of auctions that are most suitable for selling government securities. As we have seen, the theoretical analysis deals with bidders who demand only one indivisible unit of the commodity being auctioned. However, frequently in the case of auctioning government securities, bidders may submit bids for multiple units of the security, and they may also be permitted to submit multiple bids--in effect, demanding differing quantities and prices at the same auction. In such circumstances, theoretical models can offer only limited insight, and care must be taken in applying theoretical results to real world settings.

Consider first the U.S. government securities market. The weekly auction of treasury securities by the U.S. Government is structured differently from the simpler theoretical formats discussed earlier and offers an excellent example of the gap between stylized models and real world settings. In addition, this market has been subject to much recent analysis and proposed changes; accordingly, the details of the market are readily available.
The U.S. Treasury's offering of some two and a half trillion dollars in new debt annually is auctioned in a multiple-price, sealed-bid auction with active, open trading both preceding and following each event. Thirteen-and 26-week maturities are auctioned weekly; longer maturities are offered several times a year. The Department of the Treasury publicly announces the amount of debt securities it is offering, which are traded in an active "when-issued" market. This market is essentially a forward market for the securities, in which the actual issue date is the delivery date for the forward contract. This "forward market" serves two important functions: allocative and evaluative. In the latter, it provides insight into the participant's common-value beliefs about the securities' marketability .

At present, there are 39 bidders--"primary dealers"--who can participate in the U.S. Treasury auction. They submit sealed bids specifying a price and the number of securities they are willing to purchase at that price. These are referred to as "competitive bids" and approved dealers can submit them in several price-quantity combinations. In addition, the proceedings are open to the general public and individual investors through the submission of "noncompetitive" bids that specify a quantity sought, up to a fairly conservative maximum, determined by the Treasury. The price paid by these

noncompetitive bidders s a quantity weighted avera..... of the winning competitive bids. To the highest competitive bidder, the Treasury awards the amount specified at the stated price; the next highest bidder is awarded the amount demanded at his or her stated price; and so on until the supply is allocated. Winning bidders thus pay their bid, and all of them may pay different prices. The securities are delivered within a few days and may be resold in active secondary markets. Recently, starting in September 1992, the Treasury began selling two-and five-year bonds using a uniform-price auction on an experimental basis.

In addition to the forward market, there is a "repurchase and reverse" market in treasury securities, in which short-term borrowing and lending are collaterized by these instruments. One can borrow funds overnight by selling securities with an agreement to repurchase them the next day at a predetermined price, with the difference between the buying and the selling price being the return earned.

The potential for profit in Treasury auctions lies at the intersection of the three trading forums--the auction itself, the forward market, and the repurchase and reverse market. Sealed bidding combined with multiple prices creates the potential for any determined bidder to corner the postauction market. Well-informed and deep-pocketed groups can, by submitting deliberately high-valued bids, receive the bulk of awarded securities. Unsuccessful bidders who have taken a position in the "when issued," or forward, market are caught in a "short squeeze," where they are forced either to pay heavily to close their positions or to purchase securities at a premium in the repurchase market to honor their commitments. Under current Treasury auction procedures, the winner's curse places a premium on information regarding competitive bids (an important outcome of the "when-issued" market), creating the basis for a bid that will corner the primary auction and squeeze the postauction market.

Having described how the market works, we look at the arguments in favor of switching to a uniform second-price auction. One main argument rests on the belief that it will probably increase the revenue to the Treasury because, following the theoretical section, the new format would mute the "winner's curse," leading to more aggressive bidding. The magnitude of this increase may, however, be small in the United States.(26) In any case, it is not clear that revenue maximization is an appropriate goal for the U.S. Treasury. Economic efficiency seems to be more appropriate.

Another often cited advantage of uniform auctions is that they increase participation, and hence competition, since the winner's curse is muted. It can, however, be argued that the number of bidders (n) participating in a Treasury auction is endogenously determined. The potential number of competitive bidders includes the primary dealers (39) and all depository institutions (a couple of thousands). There is nothing to prevent the (n + 1)th bidder from entering. Clearly, the intramarginal investor does not think it profitable to bid. It is possible that this is related to the costs of "certification" and of establishing "creditworthiness." These costs are unlikely to change if one changes auction formats. Hence, we would not expect any significant increase in the number of competitive bidders if the Treasury moved to a uniform-price auction.(27) The recent experiences in Mexico, when it moved to a uniform-price auction from a discriminatory auction, and in Italy, when it moved from a uniform to a discriminatory auction, bear this out. The number of primary dealers in either country has not changed significantly.

A third advantage of a uniform-price auction is that it reduces socially suboptimal information gathering. The incentive to collect information diminishes in a uniform auction. Since gathering this information only redistributes wealth among bidders, it adds nothing to society as a whole. This, we believe, is a strong argument in favor of a uniform auction: it promotes economic efficiency. A final consideration is that it may be easier to implement.

Hence, any policy recommendation must be country specific. If a fairly active (competitive) market exists, a uniform-price auction would seem

appropriate, since col..sion is minimized and there cou.. be some gain to society from less information acquisition. Revenues to the government may also increase.(28)

If the market in a particular country is thin and subject to collusion, a discriminatory auction would seem more appropriate. The benefits would exceed the deadweight loss implied by excessive information gathering. In an immature market, information collecting encouraged by the discriminatory format may be useful in the initial stages of market development. Nevertheless, if concerns about collusion are minimal, a later shift to a uniform format would be desirable. Needless to say, we would recommend measures to increase participation to make the market more competitive and safeguard against monopoly positions. These measures might include lowering barriers to entry and increasing the number of participants.

In some situations, English auctions might also be chosen, particularly in situations where it is possible to run a centralized, open auction (as in a small country where all direct auction participants could meet in one location, as, for example, with the foreign exchange auction in Romania).(29) In such a situation, a Dutch auction may also constitute a feasible and desirable option.
REFINANCE CREDIT

Another situation in which auction techniques can be usefully applied is in the allocation of refinance credit. In general terms, refinance credit represents direct lending by a central bank, usually to the financial sector but sometimes directly to ultimate users. Lending to the financial sector can be for the specific purpose of implementing monetary policy--for example, by providing liquidity to commercial banks to meet specified monetary targets. It can also represent "targeted" lending--for example, in some developing countries to support investment and economic development in key sectors--in which the central bank provides funds to the financial sector for on-lending to targeted activities. When collateral (such as government securities) is required to obtain refinance credit, such credit is more likely to be called a repurchase agreement.(30) In this case, instead of extending a simple credit, the transaction entails an agreement that the borrower sell to the central bank a given security and later buy it back at the maturity date specified in the repurchase agreement. Alternatively, "refinance" facilities are also referred to as "rediscount" facilities when lending takes place against securities.(31)

A main issue that arises with refinance credit is how to allocate it. One nonprice, less market-oriented approach has been to set the price of refinance credit at a given interest rate and provide the credit on a first-come, first-serve basis up to some quantity limit. Some countries allocate refinance credit entirely on an administrative basis, directing such credit and setting its price. Frequently, when such lending is at administered rates, a substantial subsidy is involved because the administered rate is low compared with market-based interest rates. Operationally, in these cases, commercial banks have recourse (sometimes automatically) to the refinance facility at the central bank at below market-related interest rates for loans to specified sectors. Direct controls are sometimes used, instead of the first-come, first-serve approach, to achieve the desired distribution of credit and deal with the excess demand that would arise. In any event, the types of transactions described above can create significant distortions in the financial system.

Auction techniques may be viewed as a mechanism to allocate refinance credit.(32) They have the advantage of tying the refinance rate to market conditions and of improving efficiency. A potential added benefit is that auctions may improve transparency while lessening discretion in the allocation of credit. Although a topic outside the realm of this paper, it should be noted that to the extent that refinance credit is directed toward development objectives--for example, by providing subsidized credit to key sectors of the economy--such policy actions might more appropriately be handled as a fiscal matter, with subsidies being budgeted directly instead of implemented through interest rate policy. Otherwise, the central bank may be carrying quasi-fiscal operations on its balance sheet, potentially

generating central bank· sses and complicating monetary ↓ licy, as well as
disguising the underlying fiscal position. In any event, whether the
lending takes place through the fiscal authority or the central bank,
auction techniques would be useful.(33)

The discussion of auction techniques in the context of auctioning
government securities is largely applicable to refinance credit. Thus, much
of the analysis presented earlier on government securities is relevant
here, although an important qualification deserves emphasis. Auctioning
refinance credit may differ in that payment to the seller of the auctioned
item may not be required upfront as is the case with government securities.
Instead, payment is effectively made when the refinance credit matures,
thus subjecting the seller to the risk of nonpayment in the interim.
Collateral requirements would reduce this risk, as would an appropriate
evaluation of the creditworthiness of the auction participants and
associated certification. A concern is to avoid the problems of adverse
selection: allocating credit by price alone may create a situation where
borrowers with the poorest credit risk always place the highest bids. Such
a situation might arise, for example, when demanders of refinance credit
have strong incentives to seek credit at higher prices because they
themselves hold "nonperforming" assets in their portfolios and are ready to
go under.(34)

FOREIGN EXCHANGE

Countries adopting market-related arrangements for their exchange rate have
been confronted with two basic choices: operating an interbank type of
market within the private sector, which may, in addition to commercial
banks, include other licensed foreign exchange dealers; or an auction
system, whereby foreign exchange is surrendered to the central bank for
auction to the highest bidders.(35)

As noted earlier, under the auction system countries have used different
techniques, which basically divide into discriminatory-pricing (including
Dutch auctions) and uniform-pricing approaches. A possible difficulty with
discriminatory pricing is that it may discourage potential participants
from entering the market or impede more aggressive bidding because of the
winner's curse.(36) Other difficulties, using this format, concern the
appropriate exchange rate to be used for transactions outside the auction
(such as for government transactions and customs purposes).(37) Uniform
pricing would deal with some of these difficulties and more closely match
how private foreign exchange markets work. In any event, based on country
experience, the interbank approach has gained comparative favor because it
involves less government control over the availability of foreign exchange
to the private sector than is implied by auctions, which rely on the
government specifying the quantity available, at times meeting its own
needs first.

The double auction is less restrictive in terms of limiting the supply of
foreign exchange, as it brings in the private sector on both the supply and
demand sides. This technique is implicit in an interbank market when
brokers match the supply and demand orders that they receive. A main
difference is that rather than being a continuous market, as with an
interbank market, a double auction is run at discrete points in time--like
a fixing session. Such an approach may be appropriate when a country has
insufficient institutional capacity or experience to operate an interbank
market, but some of the flexibility of the interbank approach is desirable.

IV. SUMMARY AND CONCLUSIONS

Auctions play a useful role in price discovery and resource allocation and
are routinely used in market economies. This paper has focused on three
applications of auction techniques, namely, auctioning government
securities, refinance credit, and foreign exchange. In assessing the pros
and cons of different auction formats, our starting point was to survey the
theoretical literature. We described how auctions offer the advantage of
simplicity in determining market-based prices where markets may be thin or
nonexistent and in allocating the auctioned items efficiently. The

appropriate choice of auction format is less clear-c . This ambiguity stems from the difficulties of applying theoretical results to real world settings and from the importance of individual country circumstances. Based on our earlier discussion, we conclude that there are no unambiguous answers to the question of which is the "best" auction technique to use.

We attempt to provide broad guidelines to appropriate auction formats in different circumstances. Our survey indicates that uniform second-price auctions, because of their administrative simplicity, economic efficiency, and revenue-enhancing potential, are perhaps the most widely applicable format. The ascending-price, English auction may be preferred in auctioning government securities or refinance credit. However, unless individual country circumstances provide for a bidding forum conducive to the open-outcry format, this mechanism is technically infeasible. In addition, the English auction is, potentially, the most prone to collusive agreements and should be avoided if prevailing institutional arrangements are conducive to "side deals."(38) We emphasize that, independent of the chosen format, auctions should be conducted competitively, with stringent safeguards against monopoly positions.

Some of the arguments need to be qualified in the case of foreign exchange auctions, in part because auctions may not be desirable in the first place. In using any of the four basic formats, the government retains a great deal of discretion in determining the amount of foreign exchange to be auctioned. This discretion can be disadvantageous at a time when the thrust of the reform effort is to develop the private sector. Double auctions offer a favorable alternative, as the government participates on the same basis as the private sector. Nevertheless, the end goal is to encourage foreign exchange trading among participants of double auctions, and other participants in the economy, not only at the time of the auction but on a more continual basis. Thus, while auctions, especially double auctions, may be a useful intermediate step, development of an interbank market should ultimately be pursued under a floating-rate system.

In closing, we emphasize that there is a wide range of potential applications for auctions, both in terms of the specific items to be auctioned and across country groupings. In this regard, auctions can have an important role to play in the emerging market economies of the former Soviet Union and elsewhere. At present and to varying degrees, the institutional structures in these countries may not be conducive to free-market economic arrangements, and the advantages accruing from the use of auction techniques could be productively exploited. Indeed, auctions can play a pivotal role in acclimating economic agents to decisionmaking in a world of market-determined, changing prices and in efficiently allocating resources in the absence of alternative market mechanisms. More generally, the usefulness of auction mechanisms as a way to guide price determination and resource allocation applies to developing as well as industrial countries. Among the potential applications of auction techniques--in addition to those already discussed--are the privatization of state assets and the auctioning of quotas or trade licenses.

As stressed earlier, the choice of an appropriate auction format depends crucially on the specific item being auctioned and on the institutional arrangements prevailing in the country choosing between different auction techniques.

REFERENCES

Back, Kerry, and Jaime Zender, "Auctions of Divisible Goods," Working Paper (St. Louis: Washington University, 1992).
Bikhchandani, Sushil, and Chi-Fu Huang, "The Economics of Treasury Securities Markets," Sloan School of Management Working Paper (Cambridge, Mass.: Massachusetts Institute of Technology, 1992).

Capen, E.C., R.B. Clapp, and W.M. Campbell, "Competitive Bidding in High Risk Situations," Journal of Petroleum Technology, Vol. 23 (June 1971), pp. 641-53.

Chari, V.V., and Robert Weber, "How the U.S. Treasury ⌐ould Auction Its Debt," Federal Reserve Bank of Minneapolis, Quarterly Review (Fall 1992), pp. 3-12.

Cremer, Jacques, and Richard P. McLean (1985a), "Full Extraction of the Surplus in Bayesian and Dominant Strategy Auctions," CARESS Working Paper No. 85-17 (Philadelphia: University of Pennsylvania, 1985).

-- (1985b), "Optimal Selling Strategies Under Uncertainty for a Discriminating Monopolist When Demands Are Independent," Econometrica, Vol. 53 (March 1985), pp. 345-61.

Easley, David, and John Ledyard, "A Theory of Price Formation and Exchange in Oral Auctions," Technical Report No. 461 (Evanston, Ill.: Northwestern University, 1982).

Friedman, Daniel, "On the Efficiency of Experimental Double Auction Markets," American Economic Review, Vol. 74 (March 1984), pp. 60-72.

Gilley, Otis, W., and Gordon V. Karels, "The Competitive Effect in Bonus Bidding: New Evidence," Bell Journal of Economics, Vol. 12 (Autumn 1981), pp. 637-48.

Graham, Daniel, and Robert Marshall, "Collusive Bidder Behavior at Single-Object Second-Price and English Auctions," Journal of Political Economy, Vol. 95 (December 1987), pp. 1217-39.

Guasch, J. Luis, and Thomas Glaessner (1992a), "Auctioning Credit," World Bank Working Paper, Report No. 15 (Washington: World Bank, 1992).

-- (1992b), "Auctioning Credit: The Case of Chile," World Bank Working Paper, Report No. 15 (Washington: World Bank, 1992).

Hernandez, Jaime Arias, "Nueva Subasta de Tasas Multiples de Cetes," Excelsior, January 21, 1993.
Holmstrom, B., and R.B. Myerson, "Efficient and Durable Decision Rules with Incomplete Information," Econometrica, Vol. 51 (1983), pp. 1799-1819.

Joint Report on the Government Securities Market (Washington: U.S. Department of Treasury, Securities and Exchange Commission, and the Board of Governors of the Federal Reserve System, 1992).

Laffont, Jean-Jacques, and Eric Maskin, "Optimal Reservation Price in the Vickrey Auction," Economic Letters, Vol. 6 (1980), pp. 309-13.

Maskin, Eric, "Auctions and Privatization," in Privatization Symposium in Honor of Herbert Giersch , ed. by Horst Siebert (Kiel: Institut fur Weltwirtschaft an der Universitat Kiel, 1992).

Maskin, Eric, and John Riley, "Optimal Multi-Unit Auctions," in The Economics of Missing Markets and Information, ed. by F. Hahn (Oxford: Oxford University Press, 1989).

McAfee, R. Preston, and John McMillan, "Auctions and Bidding," Journal of Economic Literature, Vol. 25 (June 1987), pp. 699-738.

Mead, Walter J., "Natural Resource Disposal Policy: Oral Auction Versus Sealed Bids," Natural Resources Journal, Vol. 7 (April 1987), pp. 195-224.

Milgrom, Paul, "Auction Theory," in Advances in Economic Theory, 1985: Fifth World Congress, ed. by Truman Bewley (London: Cambridge University Press, 1987).

Milgrom, Paul, and Robert Weber, "A Theory of Auctions and Competitive Bidding," Econometrica, Vol. 50 (November 1982), pp. 1089-1122.

Quirk, Peter J., and others, Floating Exchange Rate in Developing Countries: Experience with Auction and Interbank Markets, Occasional Paper

No. 53 (Washington: Inte .ational Monetary Fund, 1987).

Rasmusen, Eric, Games and Information (Oxford: Basil Blackwell, 1990).

Reinhart, Vincent, "An Analysis of Potential Treasury Auction Techniques," Federal Reserve Bulletin (June 1992), pp. 403-13.

Robinson, Marc S., "Collusion and the Choice of Auction," Rand Journal of Economics, Vol. 16 (Spring 1985), pp. 141-45.

Smith, Vernon, "Auction Theory," in The New Palgrave: A Dictionary of Economic Theory and Doctrine, ed. by J. Eatwell, J.M. Milgate, and P. Newman (London: Macmillan, 1987).

Umlauf, Steven R., "An Empirical Study of the Mexican T-Bill Auction," London Business School Working Paper (London: London Business School, 1991).

Vickery, William, "Counterspeculation , Auctions, and Competitive Sealed Tenders," Journal of Finance, Vol. 16 (March 1961), pp. 8-37.

Vogel, Thomas T., Jr., "Dutch Auctions Appear to Be Mixed Blessing for U.S.," Wall Street Journal, January 4, 1993, p. C1.

Wilson, Robert, "Auctions of Shares," Quarterly Journal of Economics, Vol. 93 (November 1979), pp. 675-90.

--, "Double Auctions," in Information, Incentives, and Econometric Mechanisms: Essays in Honor of Leonid Hurwicz, ed. by T. Groves, R. Radner, and S. Reiter (Minneapolis: University of Minnesota Press, 1986).

FOOTNOTES
1 Reviews of the literature on auctions in different contexts can be found elsewhere, and our paper builds on the insights of these authors. See Maskin (1992), McAfee and McMillan (1987), Milgrom (1987, 1989), Milgrom and Weber (1982), and Smith (1987). In relation to recent assessments of the U.S. government securities market, excellent reviews of selected aspects of auction techniques are contained in Bikhchandani and Huang (1992), Chari and Weber (1992), Reinhart (1992), and the Joint Report on the Government Securities Market (1992).

2 The former is called a discriminatory or multiple-price auction and the latter a uniform-price auction. Definitions of different auction formats are provided in the next section of this paper. For the industrial countries, a very useful summary of the auction techniques used to sell government debt is found in the Joint Report on the Government Securities Market (1992), pp. B-29-B-40.

3 See Umlauf (1991) and Hernandez (1993).

4 These examples for foreign exchange are from Quirk and others (1987). It is interesting to note that when the International Monetary Fund auctioned part of its gold stock in 1976-80, the auctions were divided between discriminatory first-price and uniform second-price formats.
5 The traditional Dutch auction follows a discriminatory, not a uniform, multiple-unit pricing procedure.

6 This is most easily illustrated by a simple example. Suppose (i) there are four sellers of foreign exchange who each offer to sell one unit at the respective prices of 100, 200, 300, and 400 units of domestic currency and (ii) there are four demanders of foreign exchange who each demand one unit at the respective prices of 400, 300, 250, and 50 units of domestic currency. In this example, supply and demand would match at three units of foreign exchange; the equilibrium price would be indeterminate in the sense of lying between 200 and 250.

7 In contrast to what we term the four basic auction types, the theoretical literature on double auctions is sparse and the strategy and payoffs

associated with them ar difficult to summarize, as is dϲ ɛ for the others in Table 1. Because of these considerations, we exclude double auctions from the next section, which focuses on theory.

8 Although double auctions are excluded from this section, the interested reader can turn to Wilson (1979, 1986), Friedman (1984), and Easley and Ledyard (1982) for technical articles that demonstrate the problems of modeling strategic behavior in this framework. Double auctions are applicable, as we will see, to foreign exchange fixings. More broadly, however, the operations of such well established markets as those for equities, in which dealers and brokers match supply and demand in their books, can be viewed as examples of double auctions.

9 Risk neutrality is assumed in order to focus on profit-maximizing behavior. Many of the theoretical results do not hold when risk aversion is introduced.

10 Clearly, any auction needs to ensure the quality of the bidding participants (such as their credit risk) to avoid problems like adverse selection, whereby the riskiest bidders always bid the highest prices. The theoretical literature, by comparison, assumes auction participants are homogeneous.

11 In an English auction, as noted in Table 1, new information is obtained from the bidding process, which is not the case with a second-price auction.

12 Because it is advantageous to better anticipate the market consensus, market participants may be encouraged to devote resources to the competitive assessment of rival bids and information.
13 This section is partly based on Chari and Weber (1992).

14 The literature distinguishes between direct and indirect mechanisms. The direct revelation principle states roughly that corresponding to an equilibrium outcome of an indirect mechanism there is a direct mechanism that will generate the same outcome.

15 A detailed discussion of the optimal auction mechanism when the independent private-value assumption is relaxed is beyond the scope of this paper. For an expanded discussion, see Cremer and McLean (1985a, 1985b). They provide a method, based on an assumption of correlated values, that involves the use of a lottery plus participation in a subsequent second-price auction.

16 In a recent paper, Back and Zender (1992) prove formally that if the unit demand assumption is relaxed it is possible that discriminatory-price auctions can yield higher revenues than the uniform-price auction.

17 See, in particular, Milgrom and Weber (1982), who offer a formal proof for the superiority of second-price over first-price common-value auctions. Reinhart (1992) provides an excellent discussion of the issues involved in the context of the U.S. treasury bill market.
18 Gilley and Karels (1981), in a study of bidding in oil-rights auctions, find that the smaller the variance in the initial estimates of a tract's value, the higher the bids. With high investments at stake, oil firms evidently recognize and avoid the winner's curse.

19 As Milgrom points out, the linkage principle implies that sellers should use royalties when auctioning mineral or publication rights, thus linking the price paid to actual value, and, on average, increasing the seller's profit.

20 See Holmstrom and Myerson (1983) for a discussion of efficiency in games with incomplete information. They propose ex ante, interim, and ex post efficiencies.

21 See Smith (1987).

22 In both these forms, bidders bid their reservation price since, in both cases, this is the dominant strategy to pursue; thus, both formats are efficient.

23 See Milgrom (1987) for an illustrative example.
24 See, in particular, Section 4b of Maskin (1992).

25 This vulnerability reflects the fact that fraudulent activity by the auctioneer is easier to hide when bids are sealed than when they are open.

26 See Vogel (1993).

27 Bear in mind, however, that even if the number of bidders were not to increase, there may still be more aggressive bidding.

It should also be noted that discriminatory pricing provides real incentives, because of the winner's curse, to know the market consensus, and may therefore create a concentration of information among more experienced auction participants, with less specialized bidders deferring to those holding information. In such a situation, primary dealers have some information advantage reflecting the added information on the distribution of bids from their customers. When information becomes overly concentrated, there is the possibility of collusion and market manipulation. Uniform auctions would help mitigate this concern.

28 As noted earlier, such increases may be small in the case of the United States.
29 This alternative has been proposed recently by Reinhart (1992) for the U.S. government securities market. However, the approach is different from what is being discussed here because the institutional setting does not rely on the auction physically taking place at one location but rather in a computer-based setting. The development of such a computer-based setting may be many years off in the United States because of the current state of technology, and may therefore be impractical for less technologically advanced countries.

30 A similar transaction, but one that involves commercial bank lending to the central bank, and therefore a drain of liquidity, is a reverse repurchase agreement.

31 Some might say that "rediscount" is a misnomer in this case, as the term may refer only to buying a security and holding it until maturity.

32 The former Czechoslovakia, Indonesia, Romania, and Tunisia are examples of countries that use an auction approach.

33 The World Bank and the Inter-American Development Bank have begun to allow some of their on-lent funds to be auctioned. See, for example, Guasch and Glaessner (1992b) for the case of Chile.
34 Guasch and Glaessner (1992a) discuss institutional approaches to dealing with adverse selection.

35 Quirk and others (1967) reviews the experience with these two arrangements up to January 1987.

36 Some countries have argued that this result can be advantageous in deterring speculators or at least in ensuring that they pay the full price for their bids. See Quirk and others (1987, p. 12).

37 See Quirk and others (1987).

38 In recommending the English, ascending-price format for auctioning U.S. Treasury securities, Reinhart (1992) argues that collusion is not a problem.

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this paper was completed while Professor Mehra was a visiting scholar in
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DESCRIPTORS: Studies; Auctions; Advantages; Disadvantages; Impacts;
    Economic theory; Pricing; Financial instruments; Market economies
CLASSIFICATION CODES: 9130 (CN=Experimental/Theoretical); 1130 (CN=Economic
    theory)

30/3,K/1   (Item 1 from file: 630)
DIALOG(R)File 630:Los Angeles Times
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00675288 (USE FORMAT 7 FOR FULLTEXT)
VENTURA COUNTY REVIEW
Summerside Condo Auction Gives Seller, Buyers Chance for Good Deals
LEO SMITH, SPECIAL TO THE TIMES
Los Angeles Times , Valley Edition ed, colD, p7C
Tuesday October 31, 1995
DOCUMENT TYPE: Column; Brief
SECTION HEADING: Zones Desk
WORD COUNT: 560

...   a period of time, they decided to sell all 16 at once," said Bill
Stevenson, vice chairman of Kennedy-Wilson. "The typical result from an
 auction is an opportunity for both buyer and seller to get a good deal."
Stevenson said that at real estate auctions   buyers tend to get a 10% to
15% discount off market price , and sellers save on marketing
expenses,
taxes and other costs that would have accrued by holding on to the
property and selling the project gradually.
        Though real...

30/3,K/2   (Item 2 from file: 630)
DIALOG(R)File 630:Los Angeles Times
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00361009 (USE FORMAT 7 FOR FULLTEXT)
ORANGE COUNTY IN BANKRUPTCY
Selling Off Another Chunk
Salomon Bros. Unloads $1 Billion From Bankrupt Fund
TOM PETRUNO, TIMES STAFF WRITER
Los Angeles Times , Home Edition ed, colD 2, p1
Saturday December 17, 1994
DOCUMENT TYPE: Infobox; Infographic
SECTION HEADING: Financial Desk
WORD COUNT: 656

...   sold Thursday. Salomon said the bonds sold
Friday were issued more recently and thus paid interest rates closer to
market yields--reducing the need to discount their prices .
        Buyers of Friday's batch of bonds garnered yields between 7.7% and
8.7%.
        With Friday's auction , the bulk of the county fund's conventional
bonds are gone, leaving mostly derivative bonds. The latter will be much
tougher to sell.
        The fund...

30/3,K/3   (Item 3 from file: 630)
DIALOG(R)File 630:Los Angeles Times
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00293383 (USE FORMAT 7 FOR FULLTEXT)
Go for the Green
Country Club Members Scrambling to Buy PGA West, Mission Hills Courses at
Auction

DAVID W. MYERS, TIMES STAFF WRITER
Los Angeles Times , Home Edition ed, colD 1, p3
Sunday June 20, 1993
DOCUMENT TYPE: Infobox; List
SECTION HEADING: Financial Desk
WORD COUNT: 937

...   a
first step toward expanding on the West Coast.
     The homeowner groups at both PGA West and Mission Hills are also
teed-off at the **bidding** guidelines established by the RTC. For one, they
don't like the fact that **bidders** paying cash will be given a 15% **price
discount** .
     In addition, the RTC is essentially holding two rounds of **bidding**
--one
on individual properties and a second for "pools" of two or more resorts.
     Even if PGA West and Mission Hills members submit top bids...

  30/3,K/4   (Item 1 from file: 632)
DIALOG(R)File 632:Chicago Tribune
(c) 2000 Chicago Tribune. All rts. reserv.

02056723
Michigan townhomes to be auctioned
Chicago Tribune (CT) - SUNDAY February 14, 1993
By: Steve Kerch
Edition: FINAL EDITION Section: REAL ESTATE Page: 2B
Word Count: 644

     ...there is still a market for waterfront units. Last weekend, more tha
150 potential buyers reportedly attended the first open house in advance c
the **auction** .

Steven Good, president of Sheldon Good & Co., said the three-story
townhouses will offer **buyers** the chance to purchase at a substantial
discount to original **prices** .

Six of the 18 townhouses will be sold absolute, regardless of price. All of
the townhouses up for auction are in the Cottages of the...

  30/3,K/5   (Item 1 from file: 702)
DIALOG(R)File 702:Miami Herald
(c) 2000 The Miami Herald Publishing Co. All rts. reserv.

06539837
RTC SET TO AUCTION LAST FLORIDA HOLDINGS
Miami Herald (MH) - THU June 18, 1992
By: MARILYN ADAMS and BEATRICE E. GARCIA Herald Business Writers
Edition: FINAL Section: BUSINESS Page: 3C
Word Count: 455

...auction.

     The RTC will provide up to 95 percent of the financing needed to
purchase one these properties. But the agency offers a 10 percent **discount**
 on the sale **price** to **buyers** who can pay cash and complete their
purchase within 30 days of the **auction** .

TEXT:
At first glance, the palm-lined fairways and blue-green lakes scattered
across the fabled PGA West and Mission Hills golf courses near Palm Springs
appear to be tranquil oases far removed from financial turbulence or
uncertainty.
    In fact, the future of the two country clubs is very much up for grabs
these days as nearly 2,000 of their well-heeled members scramble to buy the
resorts and keep them out of the hands of several big-name
suitors--including Ross Perot Jr., Marriott Hotels, and Wall Street's
Morgan Stanley.
    The ownership issue is scheduled to come to a head next month when the
Resolution Trust Corp. puts the courses on the auction block at a
foreclosure sale in Texas. They had been owned by a now-failed savings and
loan.

    "With all those 'big guys' involved, we feel a little like it's David
versus Goliath all over again," said Dick Selberg, a member of the
Mission Hills Country Club, which the government estimates is worth
nearly $40 million.
    At PGA West, about three-quarters of the 1,600 members have already
pledged $24 million toward a down payment on the resort, which has four
courses and an estimated value of $127 million.
    Nevertheless, "We feel like we're a little outgunned, because none of
us have tried to pull something like this off before, and those Wall
Street guys are old pros at it," says member Jim Gilstrap, who is leading
the fund-raising effort.
    PGA West and Mission Hills are among a group of six golf resorts that
the RTC is planning to sell at the auction, scheduled for July 14 in
Dallas.
    Perot, a Dallas-based developer and son of the former presidential
candidate, has said that he is considering the purchase of all six
resorts--currently valued at a combined $385 million--instead of just one
or two.
    Officials at Morgan Stanley, which agreed to purchase $1-billion worth
of real estate from Bank of America earlier this year, have attended all
of the RTC-sponsored bidders' conferences but remain mum about their
plans.
    And Roger Maxwell, chairman of Marriott's golf resorts division, said
his company might make offers on some of the properties itself or sign
joint-venture agreements with other bidders.
    A third Palm Springs-area facility, La Quinta Golf & Tennis Resort, is
also up for sale. Its 550 members cannot afford to buy the sprawling
complex, valued at more than $100 million, but member spokesman James
Lloyd said the group may bid with a partner.
    The Mission Hills complex in Rancho Mirage has drawn a lot of
attention from outside bidders, partly because its smaller size makes it
more affordable. Its $39.9-million price tag includes three 18-hole
courses, 24 tennis courts, 73 rental villas and a small amount of
developable land.
    Members of the Mission Hills Country Club include baseball

Hall-of-Famer Johnny Bench, who has played a key role in the membership efforts to purchase the property. A recent mailer to members urged them to join "Johnny's team" by pledging $25,000 each; about 700 of the club's 1,100 members have already signed up.

Yet it is the four-course PGA West facility in nearby La Quinta that is the crown jewel of the RTC auction.

Its famed TPC Stadium Course--one of two open to the public--is rated the most difficult course in America by the United States Golf Assn. Its two private courses were designed by Jack Nicklaus and Arnold Palmer.

PGA West has hosted some of the world's most-prestigious golf tournaments, including the Bob Hope Chrysler Classic and the Grand Slam of Golf. The facility includes 19 tennis courts and nearly 1,500 acres zoned for expensive homes, a 1,000-room hotel and four more golf courses.

Club members recently enlisted NationsBank of South Carolina to help them. While details of the agreement remain secret, fund-raiser Gilstrap said club members "will definitely be in a position to make a good, solid bid."

Part of the association's efforts are motivated by fear, according to Gilstrap, a retired investment banker.

Most of the members paid a one-time, $30,000 fee for lifetime rights to enjoy the facility's well-kept greens. Now, they worry that a new owner might skimp on maintenance or open more courses to the public to boost cash flow.

Members also worry that a sale might harm the value of their homes, most of which overlook the fairways. Prices at the gated complex are already down between 20% and 30% from their peak of a few years ago.

Potential bidders, however, dismiss those worries.

"There are almost 1,500 acres left at PGA for a 1,000-room hotel and more than a thousand houses," said Frank Zaccanelli, vice president of Perot-owned Hillwood Development Co. in Dallas. "If we buy this property and run it into the ground, how many of those rooms could we rent or homes could we sell? Not very many."

Hillwood already owns and operates similar golf resorts in Texas and elsewhere. The company opened a satellite office in Irvine last fall as a first step toward expanding on the West Coast.

The homeowner groups at both PGA West and Mission Hills are also teed-off at the bidding guidelines established by the RTC. For one, they don't like the fact that bidders paying cash will be given a 15% price discount.

In addition, the RTC is essentially holding two rounds of bidding--one on individual properties and a second for "pools" of two or more resorts.

Even if PGA West and Mission Hills members submit top bids for individual properties, Gilstrap and Selberg both say that it is virtually impossible for them to participate in the pool bidding.

"We might offer the best price for PGA West but lose out because somebody with more money agrees to a package deal," Gilstrap said.

The RTC defends the bidding process, however.

"We're giving discounts to all-cash bidders because we can close those deals quickly and we don't have to provide any (cut-rate) financing," said RTC spokesperson Felisa Neuringer. "The pools are being offered because we might get more money for a package of properties than we would get if we sold them off individually.

"I feel sorry for what happened to the members at those resorts, but our job is to sell these properties for as much as we can," Neuringer said. "We have to serve the greater interest of all taxpayers, not just the members of those country clubs."

Golf Values Sinking

Investor interest is heating up in the premier golf courses once owned by a savings and loan association that later failed. Values on most of the courses have plunged. In millions of dollars:

Club	Book Value	Investment Value	Decline/Increase
PGA West	$278.0	$127.0	-54%
La Quinta	261.0	105.0	-60
Mission Hills	44.2	39.9	-10
Carmel Valley Ranch	45.4	22.8	-50
Palm Beach Polo & Country Club	54.5	25.0	-54
Kiawah Island	55.8	64.7	+16

Note: Figures are ᴀ of Sept. 30, 1992.
Source: Resolution Trust Corp.
CAPTIONS: PHOTO: PGA West members Jim Gilstrap, left, and Paul Chasey.
Gilstrap leads members' effort to buy golf resort.; PHOTOGRAPHER: NELSON
TIFFANY / For The Times; PHOTO: COLOR, Homeowners at the fabled PGA West
and Mission Hills golf resorts near Palm Springs hope to outbid competitors
when their facilities are auctioned off in July.; GRAPHIC-TABLE: Golf
Values Sinking, Los Angeles Times

SPECIAL FEATURES: PHOTO; TABLE
COMPANY NAMES (DIALOG GENERATED): Bank of America ; Hillwood Development
  Co ; La Quinta Golf & Tennis Resort ; Marriott Hotels ; NationsBank of
  South Carolina ; Resolution Trust Corp ; Ross Perot Jr
DESCRIPTORS: GOLF COURSES; COUNTRY CLUBS; ACQUISITIONS; INVESTORS